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**MUNICIPAL/INDUSTRIAL
STRATEGY FOR
ABATEMENT (MISA)**

MISA ADVISORY COMMITTEE

ANNUAL REPORT 1992 - 1993

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**MUNICIPAL/INDUSTRIAL
STRATEGY FOR
ABATEMENT (MISA)**

MISA ADVISORY COMMITTEE

ANNUAL REPORT 1992 - 1993

MISA ADVISORY COMMITTEE SIXTH ANNUAL REPORT

NOTICE

This bound annual report and collected MISA Advisory Committee and related documents are the property of the Minister of the Environment. The report is provided to MISA participants in good faith as timely communication to aid in the consultative process leading to the promulgation of MISA regulations. In addition, this report is available to interested members of the public on request. Readers should note that this report is intended only to reflect discussions in the development of MISA Effluent Regulations. Decisions relating to those regulations must receive Cabinet approval and must undergo public review before they can be considered final and released for promulgation. Any comments or questions related to this report should be addressed initially to the MISA Advisory Committee, Suite 401, 40 St. Clair Avenue West, Toronto, Ontario M4V 1M2 (Telephone No. 416-314-9255).

* Version française disponible

Province of Ontario
Ministry of the Environment
MISA
Municipal/Industrial Strategy for Abatement
Stopping Water Pollution at its Source

Sixth Annual Report
MISA ADVISORY COMMITTEE

Covering the period from April 1, 1992 to March 31, 1993.

(Including a summary of operations from the inauguration of the Committee in November 1986)

Permanent Membership:

Chair appointed July 1990:

Dr. Isobel Heathcote, Member appointed December 1987

Vice-Chair appointed April 1989:

Mr. Kai Millyard, Member appointed November 1986

Members:

Mr. Harvey Clare, appointed November 1986

Mr. Michel Fortin, appointed July 1992

Dr. Paul Hebert, appointed November 1986

Dr. Don Mackay, appointed November 1986

Mr. Paul Muldoon, appointed April 1989

Ms. Ruth Tovim, appointed July 1992

Mr. George Zukovs, appointed January 14, 1993

Former Members appointed November 1986:

Dr. Douglas Hallett, Member and Chairman to October 1987

Dr. Monica Campbell, Member to May 1988

Ms. Toby Vigod, Member and Vice-Chairman to January 1989

Mr. James MacLaren, Member and Chairman to June 1990

Dr. Don Mackay, Member to October 1992

Former Member appointed April 1989

Ms. Joanna Kidd, Member to March 1992

Staff Members:

Scientific and Technical Coordinator:

Mr. Simon Geller, July 1992 to August 1992

Mr. Michael Seto, February 1991 to May 1992.

Mr. Steven Klose, November 1990 to January 1991.

Ms. Yasmin Tarmohamed, September 1989 to October 1990.

Mr. Doug Vallery, April 1987 to September 1989

MISA ADVISORY COMMITTEE

SIXTH ANNUAL REPORT 1992-1993

OUTLOOK

The past year of **MISA Advisory Committee** operations has seen a busy schedule of effluent limits discussions in several sectors. The nine industrial sectors continue to proceed on different schedules, with Petroleum and Pulp and Paper farthest advanced and several other sectors (Metal Mining, Industrial Minerals, and Metal Casting) next.

The current schedule indicates that Draft Effluent Limits Regulations should be developed for most industrial sectors by late 1993. The municipal sector is expected to follow later in the schedule.

Over the past year, the Committee has spent considerable time discussing fundamental issues in several sectors, and in developing advice for the Minister on those issues. The experience of the 1990-1991 Issues Resolution Process has been helpful in these discussions, as it has within the individual JTCs, but specific issues still must be resolved on a sector-by-sector basis.

During the coming year, the Committee looks forward to the participation of its members as individual observers on the various joint technical committees charged with developing specific sector effluent limits regulations. The Committee is pleased to see that the Municipal JTC will soon reconvene and looks forward to participating in those discussions, which have been of interest to MAC for several years. In view of the anticipated level of activity within various sectoral JTCs and in response to requests from the Minister, the Committee anticipates continuation of its bi-weekly meeting schedule.

The Committee believes that it continues to contribute to the development of the MISA Program in a positive fashion, both through review of draft regulations and supporting documents, and through identification of new and emerging issues with potential to affect MISA. The Committee looks forward to continuing its role as a group of independent scientific and policy experts reviewing and advising on proposed regulatory principles and procedures.

**ONTARIO MINISTRY OF THE ENVIRONMENT
MISA ADVISORY COMMITTEE**

SIXTH ANNUAL REPORT 1992-1993

Covering the fiscal year April 1, 1992 to March 31, 1993.

(Including a summary of operations of the Committee from November 1986)

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**MISA - MUNICIPAL INDUSTRIAL STRATEGY FOR ABATEMENT
- STOPPING WATER POLLUTION AT ITS SOURCE -**

1. INTRODUCTION

The **MISA Advisory Committee (MAC)** was established by the Minister of the Environment in late 1986, primarily to provide independent expert advice on the content of draft regulations being developed under the **MISA Program** of the Ontario Ministry of the Environment. While members of the committee are considered independent and represent only their individual expertise and experience, the operation of the committee serves to represent and protect the public interest by providing a third party opinion on the direction of water quality regulation in the Province of Ontario.

2. MANDATE OF THE MISA ADVISORY COMMITTEE

By Order-in-Council 2766/86 (October 23, 1986) pursuant to Clause 3(i) of the Environmental Protection Act (EPA), R.S.O. 1980, c. 141, the **MISA ADVISORY COMMITTEE** was established to provide advice to the Minister of the Environment and Energy in accordance with the White Paper "**Municipal-Industrial Strategy for Abatement**" released in June 1986 and more particularly:

- (a) to review draft regulations relating to monitoring and effluent limits prepared by the sectoral technical committees;
- (b) to liaise and work with the technical committees;
- (c) to provide advice and recommendations to the Minister on the content of the regulations;
- (d) to provide advice with respect to such other related matters as the Minister may prescribe.

The Committee was created solely to provide advice to the Minister upon request of the Minister; the Minister is not obligated to accept the **Advisory Committee's** advice and recommendations, but will take the Committee's advice into account when finalizing regulations. Subject to the EPA, and any Order-in-Council, the Ministry agrees to respect the independence that the Committee requires in order to carry out its advisory function. In accordance with Ontario government policy concerning the sunset review of advisory agencies, the existence of the committee was reviewed in advance of its expiration date of October 22, 1989 and the term of all members of the Committee and its function renewed until October 22, 1992 by Order-in-Council 2746/89. On February 17, 1993, the terms of Mr. Clare, Mr. Millyard and Dr. Hebert, and the Committee's function were renewed until December 31, 1994 by Order-in-Council 3128/92.

3. COMMITTEE MEMBERSHIP

The following members were appointed by Order-in-Council 2997/86, dated November 13, 1986, to the **MISA Advisory Committee**, pursuant to Clause 3(i) of the Environmental Protection Act, for a term ending on the 22nd day of October, 1989:

Dr. Douglas Hallett of Acton - as Chairman
Ms. Toby Vigod of Toronto - as Vice-Chairperson
Dr. Monica Campbell of Toronto
Mr. Harvey Clare of Toronto
Dr. Paul Hebert of Windsor
Dr. Don Mackay of Toronto
Mr. James MacLaren of Toronto, and
Mr. Kai Millyard of Ottawa

For business reasons, Dr. Douglas J. Hallett resigned as chairman and member of the Committee effective October 23, 1987. By Order-in-Council 2448/87, dated November 5, 1987, Mr. James MacLaren was appointed chairman of the Committee to replace Dr. Hallett. As well, by Order-in-Council 2629/87, Dr. Isobel Heathcote of the University of Toronto was appointed as a new committee member to fill the vacant position.

Dr. Monica Campbell resigned from membership on the committee as of May 1988, and Ms. Toby Vigod resigned as Vice-Chairperson and member as of January 1989. In order to replace these vacancies, Ms Joanna Kidd and Mr. Paul Muldoon were appointed as members, and Isobel Heathcote and Kai Millyard were appointed as co-vice chairpersons by Order-in-Council 1002/89, April 1989.

Mr. James MacLaren was appointed as the Chairman of the newly created Ontario Water Services Secretariat effective July 1, 1990, and thus resigned as Chairman of the Committee. Dr. Isobel Heathcote was appointed as Chair of the Committee effective July 15, 1990 by Order-in-Council 1849/90.

In March, 1992, Ms. Joanna Kidd resigned from the Committee to allow her to serve on the Board of the Metropolitan Toronto and Region Conservation Authority. Mr. Michel Fortin and Ms. Ruth Tovim were appointed as members, replacing Mr. MacLaren and Ms. Kidd, effective July 22, 1992, by Order-in-Council 1962/92 (Fortin) and 1961/92 (Tovim).

In October, 1992, Dr. Don Mackay's term as member ended. Dr. Mackay was replaced by Mr. George Zukovs, appointed by Order-in-Council 3354/92, January 14, 1993.

All members of the **MISA Advisory Committee** are compensated according to Level 11 of Ontario Management Board Directives 6-1 (Sept. 1989) and are required to abide by

Management Board Guidelines and Directives, including those related to conflict of interest. A representative from each industrial sector, appointed by the Minister of the Environment through consultation with the sector, is to be a full member of the MAC when regulations pertaining to that sector are being reviewed. When matters pertaining to the municipal sectors are being reviewed, a representative of each of the Association of Municipalities of Ontario, and the Municipal Engineers Association, appointed by the Minister through appropriate consultation, will be members of the Committee. During this reporting period, those confirmed industrial representatives who have attended MAC meetings or who have been tentatively appointed to serve on the Committee are as follows:

- **Electric Power Generation represented by Ontario Hydro:**
Mike Northfield
- **Iron & Steel Sector represented by the Canadian Steel Environmental Assoc. (CSEA):** Al Schuldt
- **Metal Casting Sector represented by the Metal Casting Environmental Committee (MCED):** Doug Yates
- **Mining Sector represented by the Ontario Mining Association (OMA):** Brian Bell
- **Municipal Sectors represented by the Assoc. of Municipalities of Ontario (AMO) and the Municipal Engineers Association (MEA):** Lou Romano
Bob Pickett, Director of Water Pollution Control, Metropolitan Toronto (MEA)
- **Organic and Inorganic Chemical Manufacturing Sectors represented by:** Don Kerr
- **Petroleum Refinery Sector represented by the Ontario Petroleum Assoc. (OPA):** Dana Atwell
- **Pulp & Paper Sector represented by the Ontario Forest Industries Assoc. (OFIA):**
Brian Young

As well, MISA Advisory Committee members are appointed as 'observers' to the Joint Technical Committees. The observers are responsible for keeping abreast of JTC business, and for acting as liaison between the JTCs and MAC. Due to the fact that generally MAC members have full-time careers elsewhere, their attendance at JTC meetings is optional, and they rely on the timely issuance of minutes and documentation to keep them up-to-date on JTC activity. The following is the current roster of MAC observers to the JTCs:

Petroleum Sector:	Harvey Clare
Organic Chemical Manufacturing:	Michel Fortin/George Zukovs
Mining Sector:	Harvey Clare/Isobel Heathcote
Pulp & Paper Sector:	Isobel Heathcote/Kai Millyard
Iron & Steel Sector:	Mike Fortin/George Zukovs
Metal Casting Sector:	Isobel Heathcote/Paul Hebert
Inorganic Chemical Manufacturing Sector:	Paul Hebert/Kai Millyard
Municipal Sector:	Kai Millyard/Ruth Tovim
Electrical Power Generation:	Paul Muldoon
Industrial Minerals Sector:	Paul Muldoon/Ruth Tovim

4. COMMITTEE OPERATIONS

The Committee is bound by its Memorandum of Understanding (MOU), signed in May 1988 as a form of agreement between the Minister, the Deputy Minister and the Committee. Based on the re-establishment of the Committee following sunset review, the Memorandum of Understanding was modified. In addition, the Committee has prepared more detailed Operating Procedures, which are modified from time to time. Until June, 1992, the Committee was housed in premises provided by the Ministry at 112 St. Clair Avenue West, Suite 502, Toronto, Ontario M4V 1N3 (Telephone No. 416-965-1400). In June 1992, the Committee's offices were relocated to 40 St. Clair Avenue West, Suite 401, Toronto, Ontario M4V 1M2 (Telephone No. 416-314-9255).

The Committee's regular meetings are scheduled for the second and fourth Fridays of each month, but it may convene at other times depending on the workload. In terms of workload planning, the Committee is dependent for the most part on the Ministry's adherence to the MISA Regulatory Development schedule and to the timely provision of background information and documentation.

During the past fiscal year, the MISA Program focused most of its efforts on the development of several Effluent Limits Regulations. JTC activity, including subcommittee activity, has increased over the past two years, with consequent demands on the MISA Advisory Committee. The increased level of activity within the MISA program has also led to more frequent referrals to the Committee from the Minister, and thus more frequent MAC meetings. There were 19 regular Committee meetings during this reporting period.

Since August, 1992, the Committee has operated without a Technical Coordinator, because fiscal restraint initiatives have made it difficult to arrange a secondment to the position from other parts of the Ministry. The increased level of MISA program activity has therefore created a heavy load for the Committee's Chair, Vice-Chair and Administrative Assistant in the absence of technical support staff.

5. ADVICE TO THE MINISTER

The MISA Advisory Committee's Advice to the Minister and Committee responses to referrals from the Minister constitute the Committee's primary contribution to the MISA Program.

During the course of the year, the Committee's primary focus was the review of draft effluent limits regulations for several MISA industrial sectors, and advice to the Minister on specific issues and concerns.

MAC provided advice to the Minister on a Draft Model Effluent Limits Regulation, to be used as the basis for all MISA sectoral effluent limits regulations. MAC also advised the Minister on several occasions, and in several respects, on issues relating to the effluent limits regulation for the Pulp and Paper Sector. MAC also reviewed the draft effluent limits regulations for the Petroleum Sector, the Metal Casting Sector, the Metal Mining Sector, and the Industrial Minerals Sector.

Finally, the Committee has continued its discussions about issues and process in the Municipal Sector, with particular attention to the issue of toxicity compliance.

The Committee's Advice to the Minister is summarized and presented in Appendix B.

6. COMMITTEE MEETINGS

As of March 31, 1993, the **MISA Advisory Committee** has held 108 meetings since its inception. Minutes are available to **MISA** participants and to the public on request. Minutes are routinely distributed to MOE Senior Management, **MISA** Managers and Sector representatives to **MAC**. Minutes for the period are bound and generally include background documents which are pertinent to Committee discussions.

In addition to a specific meeting Agenda, the **MISA Advisory Committee** periodically publishes an "Outstanding Issues List" which acts as an agenda of continuing items and which briefly describes the nature and status of issues which have been brought to **MAC**'s attention and on which **MAC** intends to act. As of mid-1993, major continuing items or issues which have appeared on the "Outstanding Issues List" are:

1. The **MISA Municipal Program** remains a major priority of the Advisory Committee. **MAC** understands that the results of demonstration programs are now in hand and should provide guidance for the development of an effluent limits regulation for that sector. The Advisory Committee is most interested in participating in a strong consultative process leading to an effective sewer use control program and the optimized operation of sewage treatment plants. **MAC** also is interested in exploring ways to include controls on combined sewer overflows and municipal stormwater discharges within any **MISA** limits regulation.
2. The **Advisory Committee** has consistently supported the Minister's emphasis on pollution prevention and zero discharge of persistent toxic substances in the **MISA** program. The Committee is interested in the application of these concepts in the **MISA** effluent limits regulations. In particular, **MAC** believes that non-toxic effluents may be difficult to achieve for all facilities within

three years, and is therefore interested in developing a strong and consistent approach to managing problems of persistent non-compliance.

3. **The Municipal Water Conservation Project** was completed in 1991, with the release of the Committee's summary and technical reports on the subject. The purpose of this study was to reveal the need and benefits to Ontario water resources of the control of pollution emanating from urban communities, as well as the protection of their drinking waters, and the preservation of the physical integrity of their water and sewage works. The costs of the needed conservation programs and their impacts on current user fees is an important finding of this study. MAC is most interested in applying the results of this study in discussions surrounding development of MISA Municipal Sector regulations.
4. Follow-up items as a result of discussion on **MISA Regulations and Issues** include:
 - status for the Listing/Delisting Process for schedules included in regulations;
 - status of Analytical Methodology Development for selected **EMPPL** compounds;
 - status of research and development on sampling and analysis and flow measurement protocols;
 - eventual determination of the practical interpretation of "Virtual Elimination" as employed in the **Great Lakes Water Quality Agreement**.
 - ultimate enforcement practices and the consequences of non-compliance.

7. BUDGETARY PERFORMANCE

The **MISA Advisory Committee** has operated within its budget during fiscal years 1987-1988, 1988-89, 1989-1990, 1990-91 and 1991-92. Detailed budgetary information is available at the **MISA Advisory Committee Office**.

APPENDICES:

- A. Committee Permanent Membership - Biographical Notes
- B. Advice to the Minister - Summary and Documentation

APPENDIX A

M I S A ADVISORY COMMITTEE PERMANENT MEMBERSHIP

Chair - Dr. Isobel HEATHCOTE

Dr. Heathcote was appointed as an Associate Professor with the University of Guelph in July, 1991, where she is cross-appointed between the School of Engineering and the Faculty of Environmental Science. She was formerly Director of the Environmental Studies Program at the University of Toronto and Dean of Women and Director of Residences at University College of the University of Toronto. She has been responsible for coordinating a large interdisciplinary staff in the identification of environmental impacts of water pollution in the Great Lakes and has considerable experience in water quality issues in general, private sector abatement efforts and the public regulatory framework. She is most familiar with the pulp and paper and mining industries and the effects of their effluents, as well as modelling of contaminant transport in aquatic systems.

Vice-Chair - Kai MILLYARD

Mr. Millyard is the National Policy Director for Friends of the Earth and a private consultant. Over the last 6 years as a researcher and advocate for Pollution Probe, he has directed educational programs and influenced public policy on environmental issues ranging from waste management and energy conservation to water pollution control. Through membership in municipal, provincial, national and international boards and government committees, he is familiar with a wide variety of pollution control and regulatory programs.

Member - Harvey CLARE

Mr. Clare is a retired executive with Imperial Oil Limited. From 1969 to 1982, he was the Environmental Protection Coordinator for Imperial Oil; prior to that he held, among other positions, Manager for Planning and Investment Logistics, and Manager for the Refining Coordination Division. Mr. Clare is a past president and founder of the Petroleum Association for Conservation of the Canadian Environment (PACE). He is also a former treasurer of the Conservation Council of Ontario.

Member - Michel Fortin

Mr. Fortin is an economist with over 15 years of experience in the analysis of environmental and resource management problems. He acts as an independent consultant to municipal and senior governments, planning firms, engineers and management consultancies.

Member - Paul HEBERT

Dr. Hebert is a Professor of Biology and Chair of the Department of Zoology at the University of Guelph. His research examines a broad range of problems in aquatic biology ranging from work on the ecological impacts of introduced species to studies examining the mutagenic impacts of contaminant exposure on freshwater fish. As a past Director of the Great Lakes Institute, Dr. Hebert has participated in a broad range of projects examining technical and policy issues relating to the Great Lakes environment.

Member - Donald MACKAY

Dr. Mackay is a Professor at the University of Toronto, cross-appointed to the Departments of Chemical Engineering and the Institute for Environmental Studies. His research encompasses a range of environment areas, namely the impact of oil spills, the dynamics of organic contaminants - particularly in the Great Lakes ecosystem, and partitioning and solubility studies. His modelling of environmental systems is of particular note with respect to aquatic-based pollution control methods.

Member - Paul MULDOON

Mr. Muldoon is Counsel with Pollution Probe and the Canadian Institute for Environmental Law and Policy. He specializes in environmental and international law. He has lectured on environmental law at McGill University and currently teaches a course in that subject at the University of Toronto. He has written extensively on issues such as an environmental Bill of Rights, toxic water pollution in Canada and ecosystem management through law reform. Mr. Muldoon is co-author of "Zero Discharge: A Strategy for the Regulation of Toxic Substances in the Great Lakes Ecosystem" and "A Prescription for Healthy Great Lakes".

Member - Ruth TOVIM

Ms Tovim is an independent policy analyst/consultant specializing in municipal water management issues. A former policy analyst with the Association of Municipalities of Ontario, she has also held positions with the Ontario Municipal Board and Environment Canada both in Toronto and Ottawa focusing on pollution prevention.

Member - George ZUKOVs

Mr. Zukovs has been active in the field of environmental engineering for more than 20 years. In 1992, Mr. Zukovs started W₂O Inc., an environmental consulting firm specializing in water and wastewater process engineering and urban drainage planning and management. Mr. Zukovs previously held the position of Toronto Area Manager for a major consulting firm, and before that, spent a number of years with the Ontario Ministry of the Environment (formerly Ontario Water Resources Commission).

APPENDIX B

ADVICE TO THE MINISTER Summary and Documentation

The MISA Advisory Committee's Advice to the Minister is summarized and presented under the following headings:

B.1 MISA DRAFT MODEL EFFLUENT LIMITS REGULATION

- Letter to the Honourable R. Grier Re: MAC's Comments on the Draft Model Effluent Limits Regulation, May 15, 1992.

B.2 MISA EFFLUENT LIMITS REGULATION FOR THE PETROLEUM SECTOR

- Letter to the Honourable R. Grier Re: MAC's Concerns about the Timing of the Committee's Review of the Draft Effluent Limits Regulation for the Petroleum Sector, June 17, 1992.
- Letter to the Honourable R. Grier Re: MAC's Comments on the Draft Effluent Limits Regulation for the Petroleum Sector, November 30, 1992.

B.3 MISA EFFLUENT LIMITS REGULATION FOR THE PULP AND PAPER SECTOR

- Letter to the Honourable R. Grier Re: MAC's Concerns Regarding the Consultation Process in the Pulp and Paper Sector, April 28, 1992.
- Letter to the Honourable R. Grier Re: MAC's Concerns Regarding the Absence of Information Relating to AOX Limits for the Pulp and Paper Sector, May 22, 1992.
- Letter to the Honourable R. Grier Re: MAC's Comments on Certain Issues in the Draft Effluent Limits Regulation for the Pulp and Paper Sector, September 10, 1992.

B.4 MISA EFFLUENT LIMITS REGULATIONS FOR THE METAL MINING, INDUSTRIAL MINERALS, AND METAL CASTING SECTORS

- Letter to the Honourable R. Grier Re: MAC's Comments on Draft Effluent Limits Regulations for the Metal Mining Sector, the Industrial Minerals Sector, and the Metal Casting Sector, January 25, 1993.

B.5 MISA PROGRAM

- Letter to the Honourable R. Grier Re: Inclusion of Public Interest Groups in MISA Process, November 10, 1992.

APPENDIX B.1

MISA ADVISORY COMMITTEE

CORRESPONDENCE REGARDING THE

MISA DRAFT MODEL EFFLUENT LIMITS REGULATION

- Letter to the Honourable R. Grier Re: MAC's Comments on the Draft Model Effluent Limits Regulation, May 15, 1992.



Ministry
of the
Environment

Ministère
de
l'Environnement

MISA
Advisory
Committee

Comité
consultatif
de la SMID

May 15, 1992.

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The Honourable Ruth Grier
Minister
Ministry of the Environment
15th Floor
135 St. Clair Avenue West
Toronto, Ontario
M4V 1P5

Dear Mrs. Grier:

Further to your reference of May 7, 1992, the MISA Advisory Committee has reviewed the Draft Model Effluent Limits Regulation. We are delighted to see this evidence of light at the end of the MISA tunnel and look forward to implementation of this draft regulation for each of the MISA direct discharge sectors.

In our view, the draft regulation is generally strong and incorporates most of the findings of the Issues Resolution Process. We have, however, identified several major areas of concern (including some apparent departures from the Issues Resolution Process) which in our view, weaken the regulation's potential impact on contaminant discharges.

Key areas of concern are:

- **Monitoring for assessment is omitted, seriously impairing the Ministry's ability to track known toxins or discover new ones.**
- **Dischargers of toxic effluents should be required to conduct Toxicity Reduction Evaluations (TREs) after failing four successive toxicity tests.**
- **The single annual sample for quality control (Section 9(18)) is inadequate to confirm the daily and weekly values under scrutiny.**
- **Public access to information is limited to summary reports compiled by the dischargers, thus preventing analysis and interpretation of results by other interested parties.**
- **The emphasis on grab sampling, presumably to reduce the associated workload, may result in a data set that is not comparable with that collected under the monitoring regulations, which generally employed composite sampling.**

The draft regulation makes no reference to, and does not include provisions for incorporating, the Minister's September 26, 1991 promises that MISA will incorporate emphasis on pollution prevention, non-toxic effluents, no intermedia transfer of pollutants, and a zero discharge list.

These points and others are discussed in more detail in the following sections.

Monitoring for Assessment

The omission of monitoring for assessment means that it will be virtually impossible to detect new compounds or track concentrations of known toxins (not necessarily at low levels) for which BAT has not yet been identified.

MAC recommends the collection of four samples a year for assessment. Two of these should be closed EMPPL characterizations (including any new EMPPL compounds); the other two should include open scan analyses. More frequent analyses may be required for the purposes of demonstrating the performance of a new technology with BATEA potential, or for any other reason determined appropriate by the Regional Director. A full EMPPL scan should also be required in the event of a process change that is likely to have a significant effect on the quality of the effluent.

While MAC recognizes that the inclusion of monitoring for assessment will increase data management workloads for regional staff, we believe that this component is far too important to future MISA stages to be discarded.

Acute Toxicity Sampling and the Toxicity Reduction Evaluation (TRE)

MAC recommends that Section 10(8) be modified to require dischargers of toxic effluents to prepare Toxicity Reduction Evaluations (TREs) after failing four successive monthly toxicity tests. We recognize that dischargers may need time to introduce and test new technologies, and also that Section 4 will ultimately require all dischargers to meet that Section's toxicity provisions. We are nevertheless distressed at the notion that dischargers can simply write a letter and be "off the hook" for two years. We believe that all dischargers of toxic effluent should understand the sources of and controls for that toxicity even if they are not yet in a position to implement controls. Such a requirement might be less onerous on industry and ministry staff if its application was left to the Director's discretion.

Quality Control

MAC believes that the single annual sample for quality control (Section 9(18)) will be inadequate to confirm the quality of compliance monitoring data. MAC strongly recommends at least monthly sampling as necessary to confirm the daily and weekly values under scrutiny. In our view, less frequent quality control studies will seriously impair the resulting data set and are therefore a waste of time and money.

Public Access to Sampling Results

MAC notes that the Issues Resolution Process Final Report Summary (September 1991) states that "The public will have complete access to data on contaminant discharges to surface waters and on the effluent limits set for all dischargers" and also that "Effluent data will be made public". However, as currently worded, the regulation would permit an industry to prepare only a very brief and superficial report and therefore prevent analysis and interpretation of industry data by interested observers.

Under Section 15(4) of the draft generic regulation, MAC recommends that all detailed results (for example, the monthly reports submitted by the industry to the Ministry) should be available for public scrutiny during reasonable hours at each plant. It would also be desirable for these results to be available by mail on a cost-recovery basis.

Grab vs. Composite Sampling

The meaning of a "set of samples" is not clear. We understand it to mean grab sampling in most cases, but suggest that this may generate a data set that is not comparable with the composite sampling performed under the monitoring regulations. MAC is aware that each type of sampling has advantages and disadvantages and does not intend to argue that one is better than the other; we simply note that the results of each are different and potentially not comparable.

MAC recommends adoption of 24-hour composite sampling for assessment of compliance with loading limits, and of grab sampling for assessment of compliance with "never to be exceeded" concentrations. We urge caution in adopting grab sampling for convenience without careful assessment of the implications for comparability with the data collected under the monitoring regulations.

pH Sampling and Reporting

Section 8(12) requires dischargers to calculate monthly average pH values for each process effluent, but Section 4(4) requires that pH not be below 6.0 nor above 9.5. MAC does not see how compliance with Section 4(4) can be assessed using monthly average (and, we presume, occasional spot-checks by MOE). Instead, MAC recommends continuous monitoring of pH as inexpensive and providing much more satisfactory data than a monthly average. In view of the provisions of Section 4(4), MAC also recommends that pH be reported as the range of values encountered rather than a monthly average value.

Additional Comments

Section 10(1) cites the "Reference Method for Determining Acute Lethality of Effluents to Rainbow Trout" (EPS 1/RM/13) dated July 1990. We note that this document (and the parallel document for Daphnia testing) is an abbreviated document which refers to the full technical report "Acute Lethality Test Using Rainbow Trout" (EPS 1/RM/9), dated July 1990, for more detail. It may be preferable to cite the full and presumably authoritative document (or possibly both) in this regulatory context.

Section 11 contains an illogical sequence of ideas: first, Section 11(1) states that "where a discharger is required to perform a 7-day ...test", the discharger shall use the specified protocol; then under Section 11(3) the frequency of sampling is specified; and finally, Section 11(5) lays out the application (i.e., after passing 12 monthly acute toxicity tests). We would prefer a sequence wherein the application comes first followed by the frequency and then the protocol.

We feel there is a need for detail in the calculation of "reference production rate" (Schedule 4) and its potential for either upward or downward adjustment. It is important to emphasize that these values are critical in the calculation of production-based loadings and thus in assessment of compliance.

Throughout the document, the "MISA Protocol for the Preparation of a Storm Water Control Study" is incorrectly referred to as the "MISA Protocol for Conducting a Storm Water Control Study".

A more appropriate title for Section 15(6) would be *Reporting - Non Compliance*.

Finally, we note that this generic regulation fails to incorporate the Minister's promises of September 26, 1991 regarding a new MISA emphasis on pollution prevention, non-toxic effluents, no intermedia transfer of pollutants, and a zero discharge list. MAC recommends that if these promises are to be implemented through separate programs or legislation, that a specific statement to that effect be made in documents supporting this generic regulation and later sectoral limits regulations.

We trust that these comments are of assistance. As always, we would be happy to meet with you or your staff to discuss these or related issues in more detail.

Yours very truly,



Isobel W. Heathcote
Chair
MISA Advisory Committee

APPENDIX B.2

MISA ADVISORY COMMITTEE

CORRESPONDENCE REGARDING THE

MISA EFFLUENT LIMITS REGULATION FOR THE PETROLEUM SECTOR

- Letter to the Honourable R. Grier Re: MAC's Concerns about the Timing of the Committee's Review of the Draft Effluent Limits Regulation for the Petroleum Sector, June 17, 1992.
- Letter to the Honourable R. Grier Re: MAC's Comments on the Draft Effluent Limits Regulation for the Petroleum Sector, November 30, 1992.



Ministry
of the
Environment

Ministère
de
l'Environnement

MISA
Advisory
Committee

Comité
consultatif
de la SMID

Wednesday June 17, 1992

Honourable Ruth Grier
Minister
Ministry of the Environment
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RE: MAC REVIEW OF PETROLEUM REGULATION

Dear Mrs Grier,

On May 15 you referred the Petroleum sector limits regulation, and a draft of the Pulp & Paper regulation to MAC for review.

Due to the high priority accorded to the Pulp & Paper regulation in recent weeks, MAC has not had the opportunity to convene any meetings to review the Petroleum regulation.

We understand that you would like to proceed with this regulation to the public comment phase shortly, and we would not want the lack of advice from MAC to slow down this process, in this case.

Although this would be unusual, we would be pleased to take the time necessary to do a thorough job and review the Petroleum limits regulation during the public comments phase. Given the relatively high level of agreement between the petroleum industry representatives and the Ministry, MAC does not see this as problematic.

In the interim, we can draw your attention to the advice we provided on 6 changes MAC proposed for all MISA limits regulations on May 15th. That letter is attached.

We hope this proposal meets with your approval. As always, if you have any questions or suggestions on this matter, please contact us.

Sincerely,

Kai Millyard
Acting Chair
MISA Advisory Committee



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The Honourable Ruth Grier
Minister of the Environment
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November 30, 1992

Dear Mrs. Grier:

The MISA Advisory Committee has now completed its review of the draft effluent limits regulation for the Petroleum sector and has a number of comments to offer on both substance and process.

Contrary to the practice we followed for the MISA monitoring regulations, and which we hope we will follow in future limits regulations, our review in this case has been deferred until the public review period to allow us time to consider more pressing issues in another sector. The timetable for the Petroleum regulation is now well advanced, and we have no wish to delay it unnecessarily. We have therefore limited our comments to major concerns, most of which have the potential to affect other MISA sectors. In several instances, our comments on this particular regulation echo those we submitted to you on the draft model regulation on May 15, 1992.

Generally speaking, MAC found the regulation to have been developed with thought and care. We are pleased to see the high level of cooperation demonstrated by the industry in this sector, and hope that it will serve as a model for later regulations. As the first of the MISA effluent limits regulations—and the first practical application of ideas proposed under the Issues Resolution Process—we did however find it something of a learning exercise. In our review, the following four major concerns emerged:

- The economic achievability analysis provides useful information but does not appear to have contributed in any substantive way to decision making. The analysis focusses mainly on issues of cost allocation and the potential for plant closure, but provides less insight into potential job losses/gains, other investment and growth options, and impacts on community cohesion or viability.
- The process used to select parameters for limits, although well intentioned and properly carried out, seems in practice to discriminate against infrequently-monitored parameters, particularly most organic compounds. Our analysis (attached) suggests that it may favour cost savings over environmental protection.
- The review of available technologies is limited in scope and depth of discussion, and thus limits options for control.

- The deletion of **monitoring for assessment** from the regulation severely constrains the Ministry's ability to track important contaminants for which limits may be premature or inappropriate.

These concerns are discussed in more detail in the following paragraphs.

Economic Achievability Analysis

The economic achievability analysis provides useful information on the nature of the industry and its current economic condition, but the cost-effectiveness analysis used does not appear to contribute in any substantive way to decision making about effluent limits. Sector-wide data is used to draw optimistic conclusions about financial impact, but these conclusions are not supported by the background information and predictions provided. The analysis, which is limited by the unwillingness of industry to provide plant-level data, does not provide insight into the potential for job loss or creation, the displacement or creation of other investment and/or growth opportunities, or potential impacts on community cohesion or viability.

Specific concerns about this issue include the lack of a more explicit analysis using financial performance benchmarks and clearly stated rationales for conclusions about financial impact. The abatement cost functions that are developed in the economic assessment report are a valuable analytic tool but we question the format of the cost effectiveness analysis that is used in conjunction with these curves. The average and marginal cost rules applied in this analysis do not provide a reliable basis for decision making on their own and they do not appear to contribute in a substantive way to the decision making.

We attach as Appendix A a more detailed commentary on this issue.

Selection of Parameters for Limits

We believe that the selection process for candidate parameters may be excluding substances with demonstrated potential for environmental impact. A parameter monitored monthly was considered to be "absent" (and thus not a candidate for limits) even if 4 of 12 samples showed it to be present. This means that, for many toxic organic compounds, even if three of twelve values were above the regulation method detection limit, the candidate parameter was dropped from further consideration.

We were surprised that compounds such as benzene, toluene and xylene, which were found regularly at most sites, were not considered as candidate parameters for limits. (Less frequently monitored organics such as anthracene and chrysene were also found regularly but excluded from the regulation.) The background documentation, including the background document, the economic achievability analysis, and the QA/QC report, did not provide us with adequate information regarding the parameter selection process. After considerable effort on our own part, and with extensive support from MISA staff, we were able to

reconstruct the decision process to our satisfaction, but we do not believe that the process can be so easily decoded by the average reader. We therefore strongly suggest improvement in the background documentation to improve clarity.

Parameters were also dropped from further consideration because of insufficient data (a problem that MAC anticipated in comments on the monitoring regulations several years ago!). Of particular concern are parameters that fluctuate widely, and for which even an extreme value may be valid. Even infrequent, but real, high values may be of deep concern in terms of their potential for "shock loadings".

In summary, we are concerned that the decision rule as currently applied may eliminate parameters that are truly of concern. In that sense, the rule may favour financial considerations (lowest cost) over environmental protection. We do not believe that this was intended when the rule was formulated, and suggest that this issue be reviewed and the rule reconsidered before limits are set in other sectors.

We attach for your information a discussion paper (Appendix B) on the application of the "90/10" decision rule used to select parameters for limits, with suggestions for an alternative, and perhaps more protective, application method.

Assessment of Best Available Technology

We find the "global" evaluation of best available technologies to be limited in scope. Canada may indeed have in place the best technology at the Nanticoke refinery, but the information provided is so limited that the reader cannot be sure of this. We understand, for example, that the Japanese industry now uses cooling towers almost exclusively, and wonder why this and other jurisdictions did not receive more than a few lines of discussion in the background document.

Perhaps more significant, few BAT options appear to have been developed; only five appear in the original list. Of these, one (Nanticoke) is unachievable in any "retrofit" situation; one is essentially "do nothing" (Ontario current practice); and one is apparently inferior to current practice (US EPA BPT/BAT limits). Only the latter two were considered viable. We question why intermediate options were not developed between the Nanticoke flow option and Option 2A (Ontario current practice). We believe that it would have been better to ask how current practice could have been improved short of the Nanticoke approach, for instance in terms of water conservation, energy conservation, and control of pollutant loads, and then to develop intermediate options incorporating some of these improvements.

Monitoring for Assessment

The lack of monitoring for assessment continues to be a serious weakness. In the case of benzene, toluene, and xylene, and in the case of zinc (recently eliminated by the industry from processes), monitoring for assessment would provide important information for future limit-setting or for confirmation of absence. Such a requirement could be softened by allowing plants to drop the monitoring if a parameter is absent in 90% of samples.

MAC made a comment of this nature in our letter to you of May 15, 1992, regarding the draft model effluent limits regulation. The particular case of the petroleum sector has simply confirmed and exacerbated our concern.

Other Issues:

Reporting of pH

As we indicated in our comments on the draft model limits regulation in May, we do not agree with the reporting of mean pH values, as opposed to ranges or exceedences. We note, however, that a revised "generic" regulation dated October 6, 1992 has changed these requirements in favour of a compliance range. Which regulation is current and correct?

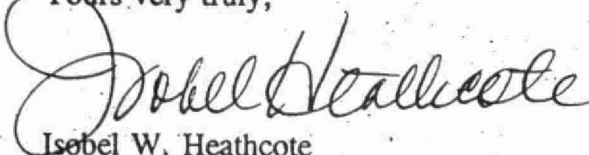
New Source Performance Standards

The regulation lacks reference to New Source Performance Standards for new facilities. While we recognize that development of such standards may take time, and that they thus may be unwarranted in the present regulation, it may nevertheless be appropriate to recognize their importance in the supporting documentation. As it now reads, the regulation implies that all future facilities would be bound by similar limits, whereas much more protective technologies would be possible in a "green field" development.

In summary, we believe that the draft regulation for the petroleum sector is an important first step towards reducing toxic discharges to receiving waters. Application of concepts developed in the Issues Resolution Process did however reveal some areas where further improvements could be made in this or later stages of MISA. If this particular regulation is so far advanced that changes cannot be easily made, we suggest that attention be directed to these problem areas in future sectors.

As always, the Committee would be happy to meet with you at your convenience to discuss our comments and concerns.

Yours very truly,



Isobel W. Heathcote

Chair

MISA Advisory Committee

APPENDIX A

SECTORAL ECONOMIC ASSESSMENT METHODOLOGY IN MISA

The sectoral economic assessment reports in MISA fulfil two primary functions:

- identification of cost effective abatement/prevention technologies,
- assessment of the financial impact of those options on the affected firms.

COST EFFECTIVENESS ANALYSIS

Cost effectiveness analysis is a comparative economic tool that identifies the least cost means of achieving a stated objective when two or more options are available. Benefits associated with the objective are not explicitly measured in dollar terms but it is assumed that those benefits are large enough that they justify the costs associated with any of the identified options. For cost effectiveness analysis to be a meaningful exercise, it is necessary that the objective be clearly stipulated and that the options be feasible, mutually exclusive and effective in achieving the objective. Ideally, each of the options will also produce the same end result so that the comparative analysis can focus just on costs.

The structure of the MISA program does not lend itself to cost effectiveness analysis. There appear to be two objectives that could be applied in a comparative analysis:

- implementation of BAT,
- virtual elimination of toxics.

The BAT objective is not a suitable objective for cost effectiveness analysis since it is defined in terms of the options under consideration. This makes the logic of the analysis circular. What can be done in this case is to screen the available options to assure that technically inefficient options are excluded. This involves cost analysis not cost effectiveness analysis. Cost analysis is used to derive the abatement cost functions in the economic assessment reports.

An abatement cost function identifies the least cost options along a range of abatement levels for a single production process. These can be aggregated in order to develop cost functions at a plant, firm or a sector level. In the current economic assessment analysis reports (petroleum, pulp and paper), a preferred option is identified as the option with the lowest average or marginal cost. Average and marginal costs are illustrated using two generic functions on the following page. The average cost is estimated as:

$$(\text{total option cost})/(\text{total reduction in emitted pollutant})$$

The marginal cost is estimated as:

$$(\text{incremental option cost})/(\text{incremental reduction in emitted pollutant}).$$

If the abatement cost function looks like case B, then the minimum average or marginal cost rule will always select the first option with the lowest level of pollutant reduction. In case A, an intermediate level of abatement is chosen. In neither case is the choice based on an assessment of the need for or the benefits of abatement. Rather, it has a conservative, cost-avoidance bias and tends not to go beyond the "kink" in the cost curve. At times this bias may be appropriate, but it is possible that the potential human and ecosystem benefits or risks in a sector may at times justify a high cost abatement strategy or a do-nothing strategy.

The virtual elimination of toxics will serve as a suitable objective in cost effectiveness analysis if alternative technologies can be identified that in fact achieve the objective. If, however, virtual elimination is infeasible or can be achieved by only one means such as closed loop manufacturing systems, then there is no need for cost effectiveness analysis — we simply select that option that gets us closest to the objective regardless of cost.

Thus the average and marginal cost rules applied in this analysis do not provide a reliable basis for decision making on their own and they do not appear to contribute in a substantive way to the decision making in MISA. An alternative approach that could be more informative entails a sector-wide analysis that identified opportunities for optimizing of emission levels among firms. These are opportunities that achieve cost savings and/or that allow a greater level of overall emission reduction without causing adverse impacts on local ambient conditions near individual dischargers. The current analysis does not allow us to identify such opportunities.

MAC has discussed these concerns with MOE staff, and is aware that the analysis has been constrained by the decision in MISA not to evaluate the benefits of abatement measures and to proceed instead on the basis of BAT and the virtual elimination target.

FINANCIAL IMPACT ANALYSIS

The kinds of questions that are important in an analysis of economic impact are:

1. will plants or firms go under?
2. will jobs be lost or gained?
3. will other investment/growth options be displaced or created?
4. how will costs be shared among shareholders, employees, suppliers, consumers and governments?
5. will community cohesion or viability be jeopardized by an adverse economic impact?

The existing economic assessment reports provide information and analysis focusing primarily on questions 1 and 4. With respect to question 1, they document a sophisticated analysis of firm level financial impact based on a counterfactual analysis of historical financial data.¹ Conclusions that are reached regarding the severity of impacts are based on a subjective assessment of the data and the analytical results. The conclusions are not supported by explicit criteria or bench marks for the various indicators such as target values or industry norms and averages. In the case of the petroleum sector, those involved in steering the analysis could not agree on target values, so that the analysts had no alternative to the subjective assessment provided in the report. In the pulp and paper study, bench-mark values are provided for certain indicators but not for the key indicators (return on assets, total debt to total assets and cash flow to total debt).

With respect to question 4, thorough reviews of industry and market structures are provided. Conclusions about the ability of firms to pass costs on to consumers in the form of price increases are developed based on the degree of market competition for sector products. The quantitative analysis using historical financial data assumes that all costs are borne by the shareholders alone.

It is not clear how the financial impact information are to be used in a strategic sense. The strategic question that is left begging concerns the difference that a severe financial impact would make in the decision regarding the degree or timing of abatement. Alternative recommendations that could follow from a conclusion that severe impacts might occur include a delayed timing for implementation, a reduced level of required abatement, government subsidies to promote abatement or measures to offset job loss and other social impacts. Such options are not discussed.

This is a brief overview that focuses on shortcomings in the economic assessment reports. Despite the noted shortcomings, the existing reports are generally well done, sophisticated in approach and useful in MAC deliberations. They probably represent the best such analyses undertaken to date by the Ministry in sectoral assessments. Existing shortcomings seem to relate to staff and time limitations and to constraints imposed by the MISA process itself. The challenge for MAC will be to determine whether and how economic assessment report information can be integrated into its assessment of draft regulations.

¹ Historical financial accounts data spanning ten years for each firm are shocked by imposing the capital and OM costs for proposed BAT options. The resulting impact on a number of financial indicators are determined.

APPENDIX B

THE 90/10 RULE WITH A 95% CONFIDENCE INTERVAL

The Background Document for the Effluent Limits Regulation for the Petroleum Sector states that "Parameters were deleted from further consideration if the effluent monitoring data showed (at a 95% confidence interval) that 90% of the data were at concentrations less than the RMDL (page 5-3)." In a discussion explaining the 90/10 rule, the following comment is made: "Since treated effluent data are being analyzed, it is critical to maintain a conservative approach in selecting parameters for BAT(EA) review". (Issues Resolution Report, page 60). The meaning of these statements is ambiguous, so the MISA Advisory Committee has prepared the following summary to clarify the ways in which the 90/10 rule is actually being applied.

With the 90/10 rule, limits are only to be established for substances that occur at concentrations that exceed a trigger value in more than a 0.10 proportion of the sample data for that substance (or, equivalently, a 0.90 or lower proportion of the sample data are less than the trigger). This rule is expressed in terms of the monitoring data rather than the total volume of effluent, and as such, it could be taken at face value as a simple 90/10 rule applied to that data without a statistical interpretation. In actual fact, however, the rule is interpreted statistically and therefore appears to refer to the entire effluent flow rather than a sampled portion of that flow.

The rule as it is currently being applied is therefore more accurately stated as follows: **Limits are only to be established for substances that occur at concentrations that exceed a trigger value in more than a 0.10 proportion of the total effluent.** (It is not clear whether this rule is meant to refer to 90% of the time during which effluent is released, or 90% of the total volume of effluent, but it would seem that time is the relevant parameter since the rule is expressed in terms of simple frequencies without flow-proportional weighting.)

Since sample data are used to characterize the occurrence of pollutants in an effluent, conclusions about the true quality of the entire effluent cannot be drawn with complete certainty. Decisions made without a statistical approach in this context would likely be difficult to defend.

Current Application of the Rule

In order to express the 90/10 decision rule in statistical terms, it is helpful to re-state the rule so that the underlying null and alternative hypotheses are more obvious. There are two possibilities: the one presented immediately below is consistent with the current application of the rule; a second version is presented later in this note. The rule is currently applied as follows:

If the proportion of data exceeding a trigger value for a contaminant equals or is less than 0.10, then exclude that contaminant from the regulation. If the proportion exceeds 0.10, then include it.

Given a sample containing n observations of which r values exceed the trigger value, then the corresponding null hypothesis and alternative hypothesis are, respectively:

null hypothesis: H^0 (exclude): $r/n = 0.10$

alternative hypothesis: H^1 (include): $r/n > 0.10$

NOTE: The correct alternative hypothesis to apply here is one-sided (or one-tailed), as shown, since the decision rule itself is one-sided, action only being taken if $r/n > 0.10$. The simple inequality condition of a two-tailed test — $r/n \neq 0.10$ — would not be appropriate because it would imply that limits for a contaminant be included in a regulation if r/n for that substance is either significantly more than or significantly less than the hypothesized 0.10 value. This is the implication because one side of the distribution cannot simply be ignored in a statistical test.

In any single sampling analysis, the observed value for r/n could fall on either side of 0.10. This test therefore requires that the data demonstrate with considerable certainty that the expected value of r/n is in fact greater than 0.10 before it is included in the regulation. This means that the value for r/n observed from the monitoring data must be sufficiently in excess of 0.10 that, given the variability in the data, there is very little chance that the true (or total effluent) value of r/n is in fact as low as 0.10. When the sample value for r/n is large enough, we can reject the null hypothesis with confidence.

The level of confidence proposed for the decision rule is 95%. With daily sampling, there are 365 observations and 0.10 of this sample is therefore 37 observations. A 95% confidence level means that, to satisfy the 90/10 rule or to be 95% sure that there will be on average at least 37 observations in excess of the trigger, we must actually observe 45 such observations in a single set of sampling data (i.e. 0.12 of the data). This number is deemed to provide significant evidence that the total effluent value for r/n is greater than 0.10. The degree of uncertainty increases as the sample size gets smaller and the test of confidence accordingly becomes more onerous. Thus, with monthly sampling data (12 observations), we should observe at least 4 observations in excess of the trigger (0.33 of the data) to be sure that at least 0.10 of the total effluent actually exceeds the trigger.

If the size of the confidence interval is increased then the test is made more stringent. For instance, an increase in the confidence interval from 95% to, say, 99% with daily sampling data would increase the required number of observations in excess of the trigger from 45 to 49 in order to justify a regulatory limit on a contaminant under the 90/10 rule; with monthly sampling data, the number increases from 4 to 5. Adopting a lower confidence interval makes the test less stringent — a 90% confidence interval implies exceedence counts of 43 and 3 observations in daily and monthly sampling data sets.

In this type of test, two types of error can be made. We might reject the null hypothesis when it is in fact true, because, occasionally, a relatively large number of exceedences will be observed in the sample data (a type one error). This error would result in a limit being imposed on a contaminant when none is warranted.

The opposite error occurs if we fail to impose a limit because the null hypothesis was accepted when in fact it should have been rejected in favour of the alternative hypothesis.

This is a type two error and it occurs because a sample data set may at times contain an atypically small number of exceedences.

Type one errors minimize the risk of environmental damage by increasing the level of surveillance and enforcement, but they increase the cost burden imposed by the regulation. Type two errors have the opposite effect: they increase environmental risk while minimizing financial cost. With the current test structure, a high confidence interval is financially conservative in that it reduces the likelihood of type one errors and increases the likelihood of type two errors. Conversely, a low confidence interval is environmentally conservative in reducing environmental risk while increasing cost. The 95% confidence interval is a standard test value, but it is not environmentally conservative. A 90% or 80% confidence interval would be environmentally conservative.

AN ALTERNATIVE APPLICATION OF THE RULE

While the current decision rule can be made more environmental conservative by adjusting the confidence interval, it is inherently a rule that emphasizes financial cost over environmental risk in that it takes as its starting point the proposition that pollutants should be excluded from the regulation unless there is strong evidence favouring inclusion. A rule that emphasized environmental risk over financial cost would assume that pollutants should be included in the regulation unless the evidence suggests that they should be excluded. The following rule captures the logic of this alternative approach:

If the proportion of data exceeding a trigger value for a contaminant equals 0.10, then include it in the regulation. If the proportion is less than 0.10, then exclude it.

As before, this rule can be expressed in the form of statistical hypotheses. The null hypothesis is now

null hypothesis: H^0 (include): $r/n = 0.10$

alternative hypothesis: H^1 (exclude): $r/n < 0.10$

As before, the alternative hypothesis is one-sided, but the direction of the inequality is reversed. This is an important change since we are now operating on the lower side of the 0.10 proportion in making decisions (see figure).

Previously, the observed sample proportion, r/n , had to be sufficiently large that we were confident that it was greater than 0.10; with this alternative decision rule, r/n must be small enough to convince us that the true value of r/n for the total effluent is in fact less than 0.10. Using the daily sampling example (365 observations) with a 95% confidence interval, a contaminant limit would be called for in the regulation if more than 28

observations exceeded the trigger value (instead of 45 with the first rule). With monthly sampling, a limit would be called for if a single observation exceeded the trigger value.

This is clearly a very conservative rule from an environmental perspective. If it is too conservative for setting limits, then perhaps it would be a reasonable rule to apply in defining monitoring for assessment requirements — a task where a conservative stance is clearly warranted since the financial costs of assessment are relatively low while the environmental risks are high.

In summary, MAC believes that application of this alternative decision rule would support development of limits for less frequently monitored contaminants, including some organic compounds such as benzene and toluene that are currently, and somewhat surprisingly, absent from the draft regulation.

APPENDIX B.3

MISA ADVISORY COMMITTEE

CORRESPONDENCE REGARDING THE

MISA EFFLUENT LIMITS REGULATION FOR THE PULP AND PAPER SECTOR

- Letter to the Honourable R. Grier Re: MAC's Concerns Regarding the Consultation Process in the Pulp and Paper Sector, April 28, 1992.
- Letter to the Honourable R. Grier Re: MAC's Concerns Regarding the Absence of Information Relating to AOX Limits for the Pulp and Paper Sector, May 22, 1992.
- Letter to the Honourable R. Grier Re: MAC's Comments on Certain Issues in the Draft Effluent Limits Regulation for the Pulp and Paper Sector, September 10, 1992.



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April 28, 1992.

The Honourable Ruth Grier
Minister of the Environment
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Dear Mrs. Grier:

The MISA Advisory Committee is pleased to hear from J. McLean that you are preparing a response to the concerns we raised with her in our last meeting of April 10, 1992, and reiterated in our letter to you of April 23, 1992.

At our meeting on Friday, April 24, 1992, we reviewed the availability of supporting documentation for the Pulp and Paper regulation, which we understand will soon be referred to us for formal review. We note the following:

(1) **The documentation is incomplete:**

- Economic Achievability data is apparently available in draft form but (despite repeated requests to Ministry staff) has not yet been provided to MAC.
- The Development Document, which explains to the industry, the public, and all other participants the rationale for the form of the regulation and the specific limits contained in it, is not yet available even in draft form.
- Schedules with explicit limits for each plant may have been developed but have not been made available to MAC.

Indeed, MAC wonders how the internal Ministry review could be completed in the absence of this information.

- (2) The consensus-building process has apparently broken down and the Pulp and Paper industry has not been actively consulted since the Fall. Indications from other sectors (e.g. the concerns of the chemical sectors expressed in D. Kerr's letter of April 21, 1992) indicate growing disillusionment with the process as well. We note that the 1986 MISA White Paper places particular emphasis on the involvement of industries and municipalities in the MISA decision-making process.
- (3) We learned from J. McLean on April 10, 1992 that you intend to proceed with the **release for public comment of the Pulp and Paper Regulation package in early to mid May**. We understand that you confirmed this date in your April 23, 1992 meeting with the public interest groups.

In view of these circumstances, MAC has concluded that it would be ill-advised to proceed with the Pulp and Paper Regulation at this time. This is especially true given the complex technical and economic issues currently facing the industry.

It is our understanding that the Petroleum Sector Regulation is further along in technical development, documentation and consultation than the Pulp and Paper Sector. In a letter dated August 1, 1991, Dana Atwell, Chairman of the CPPI MISA Committee confirmed industry's agreement to proposed limits, stating "...in order to facilitate the prompt completion of the regulation for the Petroleum sector, we concur with the recommendation of the Limits Setting Subcommittee. It represents a workable solution to a difficult problem and we are prepared to agree to it at the JTC meeting on August 15, 1991." If this is true, it may be easier to establish the necessary strong precedents for MISA BATEA regulations by starting with the Petroleum Sector. Our experience with the monitoring regulations suggests that we can expect some difficulties in processing the first MISA Limits Regulation simply because it is the first.

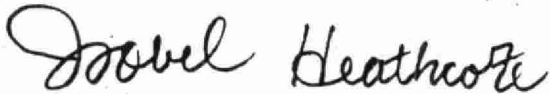
MAC believes that effective MISA controls on the Pulp and Paper Sector will be the largest and most difficult accomplishment of the entire MISA Program, and one made especially tough in the current economic recession. Indeed, we are of the view that the potential opposition to this regulation may be so great that its success is not at all guaranteed. To lose the first and most important limits battle in MISA could jeopardize the success of other MISA regulations and endanger the credibility of your Ministry.

In summary, MAC believes that by replacing the Pulp and Paper Regulation with the Petroleum Regulation as the first for public consideration, you can achieve caution without significant delays to the program. By tackling a more straightforward regulation first, you will be able to establish a precedent showing Ministry-industry cooperation at work, and demonstrate a standard of industry behaviour against which later sectors can be judged. We suggest that the Petroleum Sector be followed by the Organic and

Inorganic Sectors (also well advanced and progressive in outlook), to lay a strong foundation of experience before the more difficult Pulp and Paper regulation is attempted. In doing this, you can restore the consensus building process, regain the trust and cooperation of all parties involved, and demonstrate the government's commitment to achieving progress on water pollution in this Province.

As always, we would be happy to meet with you and your staff to discuss these views in detail.

Yours very truly,

A handwritten signature in cursive script, reading "Isobel Heathcote". The signature is written in dark ink and is positioned above the printed name and title.

Isobel W. Heathcote

Chair

MISA Advisory Committee



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May 22, 1992

The Honourable Ruth Grier
Minister of the Environment
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Dear Mrs. Grier:

Further to your request of May 15, 1992, the MISA Advisory Committee met today to review the status of the draft Pulp and Paper limits regulation. As of 4 pm today, MAC still has not received direction on the AOX issue. We also lack the revised Development Document and AOX discussion paper referred to in your letter. We understand from MISA staff that these documents will be ready by about Friday, May 29. We note that the development document is in some respects incomplete, and we would like to request that the final document include the following information:

- estimated loading reductions for each mill under proposed limits
- a comparison of the proposed limits with limits from other jurisdictions, particularly the US EPA, British Columbia, and Canadian federal regulations
- incremental costs to achieve MISA limits above and beyond the costs to be incurred in compliance with the recently released federal regulations

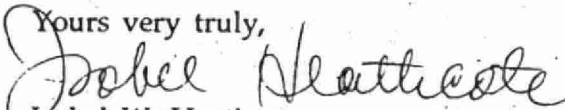
MAC believes that the selection (or omission) of an AOX limit will have significant implications for technology selection, and thus for the control of other contaminants. They will clearly also affect compliance costs to be borne by the industry. It goes without saying that AOX limits may thus have a major influence on the implementability of the proposed regulation. MAC is therefore unwilling to undertake even a preliminary review of the draft regulation in the absence of up-to-date information about proposed AOX limits and their justification. If, however, we receive the missing information by Friday, May 29, we will review the complete package, meet Friday, June 5 to discuss it, and provide you with specific comments no later than Friday, June 12. You already have our advice of May 15 on the draft generic regulation and those comments will pertain also to the draft Pulp and Paper regulation. We hope that the JTC meeting to be held Monday, May 25 will result in a proposal that is acceptable to both the Ministry and the industry and allow us to include an industry representative during MAC's consideration of the regulation.

Finally, it may be helpful to you over the next months to have some understanding of the process that was used in developing and reviewing the MISA monitoring regulations. That process may be summarized as follows:

1. MAC was consulted informally by MISA staff from the conceptual stage of each regulation to the finished document. The purpose of this step was to avoid last minute surprises and extensive revisions to completed documents.
2. The Joint Technical Committee for each sector reached agreement on content and drafted a regulation which was then submitted to the Minister.
3. The Minister officially referred the complete regulation package (including economic impacts, development information, sector profiles, and the draft regulation itself) to MAC for review.
4. MAC members reviewed the regulation package separately and in detail before meeting to discuss it.
5. MAC met (with its industrial representative present) to obtain explanations and clarifications from Ministry authors. The concerns expressed by each MAC member, including the industrial representative, were compiled at this stage.
6. Before MAC's next meeting, the Chair drafted a letter to the Minister summarizing members' concerns and circulated the draft letter to members for comments.
7. At its second meeting on the regulation, MAC finalized the draft letter and approved its release to the Minister.
8. The Minister then considered MAC's advice on the draft regulation (if changes were recommended) and, usually in a Ministry Management Committee meeting, decided which points to adopt into the regulation. At this stage, the MAC Chair was sometimes asked to attend Management Committee meetings to make presentations explaining MAC's position on key issues.
9. The Minister then released to the public the draft regulation for a sixty day public comments period. The draft regulation at this stage included revisions based on MAC's comments (where accepted by the Minister) and was accompanied by a copy of MAC's advice to the Minister as part of the public review package.
10. Following the public comment period, the Ministry would incorporate any necessary changes into the draft regulation and proceed with its implementation.

We regret that we are unable to accommodate your May 29 deadline in the absence of information on proposed AOX limits. We look forward to receiving that information and providing you with comments on the draft limits, their justification, and the feasibility of implementing this important regulation.

Yours very truly,

A handwritten signature in cursive script, reading "Isobel W. Heathcote". The signature is written in dark ink and is positioned above the printed name.

Isobel W. Heathcote

Chair

MISA Advisory Committee



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September 10, 1992

The Honourable Ruth Grier
Minister of the Environment
15th Floor
135 St. Clair Ave. West
Toronto, Ontario M4V 1P5

Dear Mrs. Grier:

Further to your request of June 29, 1992, the MISA Advisory Committee has reviewed proposals for effluent limits for the Pulp and Paper Sector, with particular attention to areas where agreement has been difficult to reach.

In our deliberations, we were assisted by **Brian Young** of **Abitibi-Price**, the sector's designate to the MISA Advisory Committee, and a number of observers and independent experts. **Wally Vrooman** of **Canadian Pacific Forest Products** and **Yvon Beauregard** of **Domtar Inc.** attended as industry observers and provided support for Mr. Young in a variety of technical and economic areas. Also advising the industry were two consultants, **Doug Pryke**, who regularly supports the industry at JTC meetings, and **Bill Gunning** of **NLK Consultants Inc.** Mr. Gunning is an expert in the design and operation of effluent treatment systems, particularly activated sludge systems, and kraft pulping and bleaching systems. He also has considerable experience in the estimation of capital and operating costs and is knowledgeable about the regulatory and permitting process for the pulp and paper sector in Western Canada. MAC commissioned the services of two additional consultants: **Neil McCubbin**, primary author of the expert reports on the kraft and non-kraft sub-sectors and author of the sector BAT report, and **Gary Amendola**, who was involved in the development of EPA Clean Water Act regulations and now provides advice to the U.S. EPA on the development of new regulations for the pulp and paper sector.

Your referral asked us to consider some of the most fundamental and controversial issues in the sector. In responding to it, MAC has therefore strayed outside its usual role, which is to review only final draft regulations and associated documents:

Although we have read and consulted widely in preparing our advice, we must emphasize that we do not see ourselves in the role of formal negotiators or mediators, and we have not therefore attempted to consult with all stakeholder groups. We strongly recommend, however, that you review the mechanism by which the public, and the public interest groups, are involved in the development of MISA effluent limits regulations, to enable the strongest possible consensus to be built for future regulations. As we have noted in earlier documents, we do not believe that current mechanisms are adequate for this purpose.

Notwithstanding these comments, the Committee is pleased with our progress to date. On only one issue are we still strongly divided: that of regulation of AOX. Recognizing the continuing debate on the highly controversial issue of AOX controls, both inside and outside the Committee, MAC has elected not to provide you with a single recommended strategy.

It is now our opinion that full consensus will not easily, if ever, be won on this most contentious issue. We recognize that your decision may therefore be coloured by considerations outside our knowledge or mandate. We trust that this document will provide you with comprehensive, objective information reflecting a variety of viewpoints, as background for that decision.

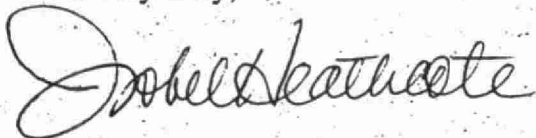
Where we refer to "agreement" in the following document, that agreement should therefore be construed as general agreement within MAC. Without formal consultation with the public and the public interest groups, we cannot gauge the acceptability of any particular approach to all potential stakeholders.

We have structured our report in three parts.

- In Part I, we list areas where general agreement has been achieved amongst all committee members including the representative from industry.
- In Part II, we examine seven options for the regulation of AOX and/or specific persistent toxic compounds.
- In Part III, we list four "add-on" items that could be added to any option at your discretion.

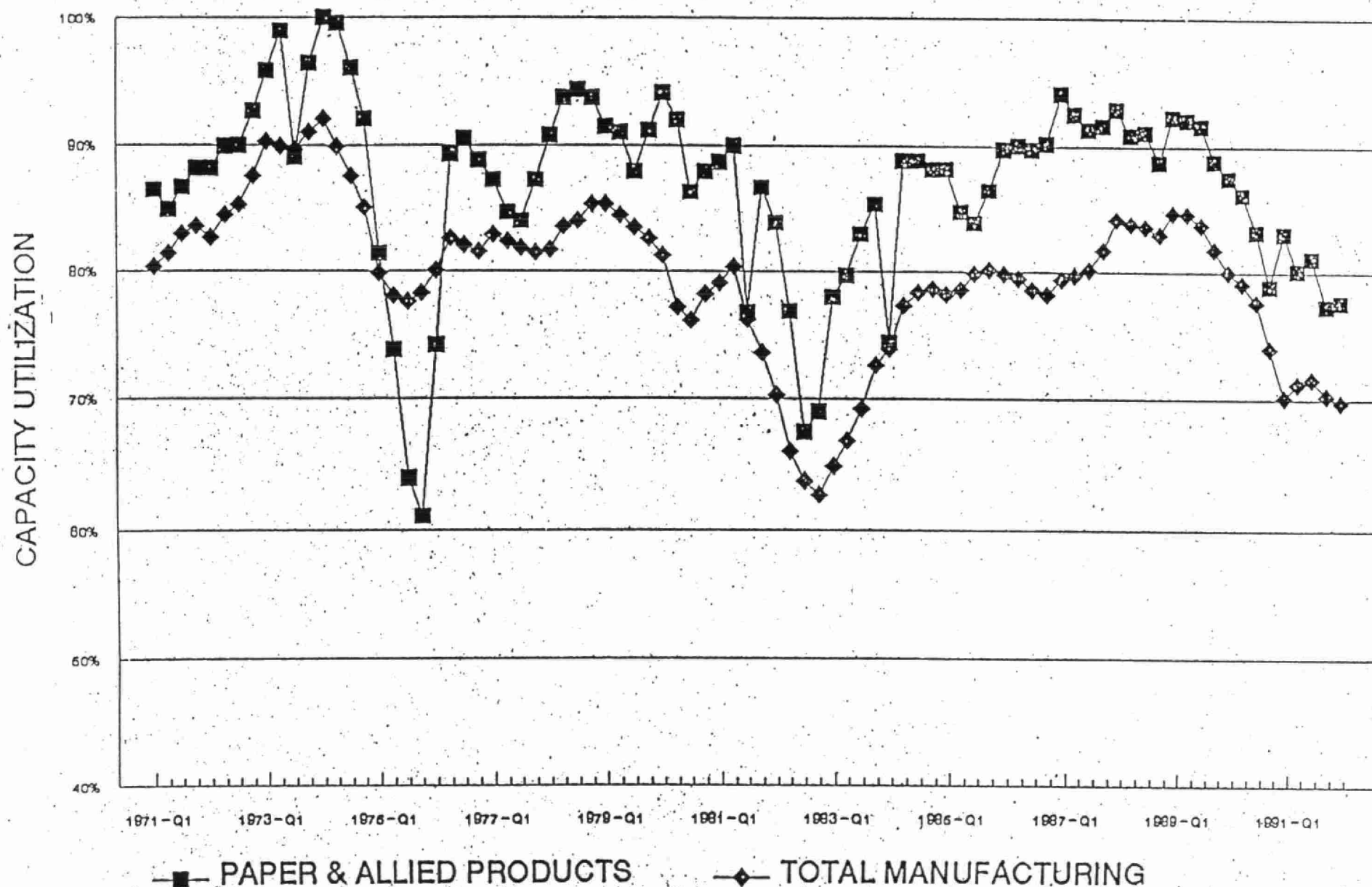
We trust that this information assists you in your deliberations about effluent controls for the pulp and paper sector. As always, MAC would be pleased to meet with you at your convenience to discuss this material or any other matters pertinent to this sector.

Yours very truly,



Isobel W. Heathcote
Chair
MISA Advisory Committee

FIGURE 1: CAPACITY USAGE



SOURCE: Statistics Canada, Capacity Utilization Rates in Canadian Manufacturing, Catalogue 31-003.

REPORT OF THE MISA ADVISORY COMMITTEE ON OPTIONS FOR CONTROL OF PULP AND PAPER EFFLUENTS

PART I: AREAS WHERE MEMBERS ARE GENERALLY IN AGREEMENT

The following proposed limits have the general agreement of all members of MAC including the representative from the pulp and paper sector. They are believed to reflect "best available technology, economically achievable". Unless stated otherwise, all figures represent average monthly limits expressed in kg/tonne, and all are to be in force on the first day of the fourth year following promulgation. These figures are given for comparative purposes only; it is expected that the final regulation will also contain corresponding daily limits.

SUBSECTOR

kraft, sulphite, mechanical corrugating, deinked, fine, tissue

5 day BOD	5.0	2.9
Total Suspended Solids	7.87	4.57
AOX	1.5	1.5
Total Phosphorus	0.20	0.20
Chloroform	0.00188	0.00109
Toluene	0.000215	0.000125
Phenol	0.000413	0.000240
2,3,7,8-TCDD + 2,3,7,8-TCDF	The sum of 2,3,7,8-TCDD + 10% of 2,3,7,8-TCDF must not exceed 22 ppq (= LOQ for 2,3,7,8-TCDD + (0.1 x LOQ 2,3,7,8-TCDF))	
Toxicity	Acute toxicity requirements as proposed in the draft regulation; parallel reporting of required federal Environmental Effects Monitoring results to MOE.	

The following additional requirements also have the agreement of all MAC members and the representative from the pulp and paper sector:

(1) Never-to-be-Exceeded Limits

It is MAC's view that **never-to-be-exceeded limits should be removed from the regulation**. While such limits are useful for quick assessment of compliance, and may be a deterrent for peak or "shock" loadings, the statistical and scientific justification of the proposed numerical limits is weak and it is therefore unclear whether they will withstand a legal challenge. To our knowledge, such limits are not used in any other jurisdiction, possibly because of their potential to encourage dilution and thus discourage water conservation.

MAC recognizes, however, that this issue may have important implications for future regulations and recommends further that **the Ministry's Legal Services Branch review this issue and provide you with advice as to the feasibility of introducing such limits in future stages of MISA.**

(2) Reference Production Rates

MAC unequivocally supports the need for production and loading "caps", as documented in many previous reports. We do, however, recognize that there is considerable debate as to the most effective method of implementing them.

MAC recommends that, for convenience, **reference production rates should be calculated by the same method as is used under federal regulations**, as follows: "for any year [the reference production rate] is equal to the highest value of the 90th percentile of the daily production of finished product at the mill for any of the previous three years".

To ensure that pollutant loadings cannot perpetually increase with increasing production volume, **MAC recommends that facilities be permitted to select a production-based loading "cap", which could be based on the highest production observed over the past five years, or a substantiated future production expectation (no more than 25% greater than the foregoing number). This loading "cap" should remain in effect until the limits are formally reviewed in five years.**

The purpose of this would be to place a cap on loadings without precluding currently-planned expansions. MAC has heard considerable evidence regarding the cyclical nature of industry profit levels over the past twenty-five years and the need for long

term planning. Figure 1 demonstrates the fluctuations in capacity usage within the industry over the past twenty years. Present production levels are about 30% below design production and well below capacity usage ten to fifteen years ago. Facilities may need to increase production beyond present levels to assure economic viability following environmental expenditures.

(Alternatively, no cap could be set and a "water quality track" approach could instead be used to determine the need for further loading limits in the future, as is done under the US Clean Water Act. This implies that the water quality studies necessary for the development of local limits would be undertaken and evaluated by the Ministry. The industry is already committed to such studies under federal environmental effects monitoring requirements, and has successfully implemented receiving water-based effluent discharge controls at several mills in the province. MAC believes that the water quality track approach, while perhaps preferable to a loading "cap", may be too cumbersome for implementation in the present stage of MISA.)

(3) Requests for Variance from Regulatory Requirements

Once in each regulatory period (i.e. each MISA stage, or each permit period if a pollution elimination permit system were in place), each facility could have the option of submitting an application jointly to the Director of the Water Resources Branch and the Regional Director for a variance from the requirements of the regulation based on "fundamentally different factors" (similar to those in place under the U.S. Clean Water Act). Such an application could be required upon promulgation for BAT-EA effluent limits regulations, or during some fixed period before compliance with technology-forcing limits.¹

This approach recognizes that certain facilities may be forced to bear treatment costs that are out of proportion with those envisaged in the development of BAT-EA standards, or that other environmental impacts (for example energy use) arising from the installation of treatment options may exceed the environmental benefits of such installation, or similar factors. The concept of "fundamentally different factors" should be formally recognized in the regulation, not just expressed as compliance

¹Technology-forcing limits require industry to develop new approaches to pollution control and prevention. These approaches are seldom apparent upon promulgation (as with control of CFCs) but emerge with time. Under technology-forcing regulations, a facility needs time to evaluate its existing technology, then seek and evaluate alternative technologies, before deciding whether an application for variance would be justified.

policy. A mechanism for the implementation of this approach is under discussion but could include variances authorized under a Control Order or by amendment to scheduled limits under the regulation.

(4) New Source Performance Standards

Within one year of promulgation, MAC recommends that the Ministry in cooperation with each JTC propose **New Source Performance Standards** for each MISA sector. Such standards were mentioned in the 1986 MISA White Paper and are used in many other jurisdictions, notably the United States. New Source Performance Standards formally acknowledge that it is possible to achieve better performance with a "green field" plant than in an older plant with retrofitted technology.

(5) Policy Statement on Periodic Review of Limits

Finally, MAC recommends that in releasing this regulation for public review, you also release a **formal restatement of the MISA policy that regulations will be reviewed at five year intervals following promulgation**, and that in each review limits may be revised. The staged nature of the MISA program has been mentioned in a number of MISA documents, particularly the White Paper and the Issues Resolution Process Summary Report. MAC believes that, given the controversial nature of some issues in this sector, it may nevertheless be important to reiterate your intention to review, and where necessary, MISA effluent limits regulations on a five year cycle.

Several other issues arose in MAC's considerations of limits for this sector. They are discussed in the following paragraphs. **Our advice on these issues has the support of MAC's industrial representative.**

Statutory Authority and Related Considerations

MAC was unable to pursue options involving control of products and processes because of the uncertain statutory authority available for such regulations. We believe that the Ministry's Legal Services Branch could provide valuable advice to you respecting the current provisions of the law and the potential for control of products and processes under it. For the present, MAC has elected not to pursue such options further.

MAC was also constrained in its consideration of options involving so-called "economic instruments", such as taxes, effluent charges, loans, grants, loan guarantees, and similar measures. Many members believe that economic instruments offer valuable opportunities for encouragement of industry towards expressed goals external to a regulation. Implementation of such measures may, however, create inequities among companies and sectors, and create problems under international trade agreements. MAC has therefore abandoned consideration of such options (with the exception of a suggested procurement policy, discussed in Part III), but would welcome further discussion and assessment of economic instruments, possibly through the Ministry's Policy Development and Intergovernmental Relations Division.

The Certificate of Approval System vs. Time-Limited Permits

Many options that would otherwise have been possible, and are indeed in use in the U.S. and other jurisdictions, were closed to MAC because of the limitations of the existing Certificate of Approval system. MAC has commented many times in the past on the need for restructuring of that system, with a move towards Clean Water Act-type "pollution elimination permits".

Industry has been understandably reluctant to accept limits that reach beyond a three year horizon, simply because their technical and economic feasibility, and possibly their environmental impact, cannot now be judged with certainty. We were therefore unable to pursue options such as staged reductions in phosphorus, BOD and suspended solids, however desirable.

Under a pollution elimination permit system, however, time-limited (say, five-year) permits could exist under MISA effluent limits regulations, offering the opportunity to strengthen regulatory provisions, or add additional provisions, on a site-specific basis, incorporating public review and comment. Under such a system, industry would have a guarantee that limits would be reviewed and revised at regular and predictable intervals. The fixed term of such a permit would also allow industry to plan and stage its expenditures with confidence that its obligations will not change during the permit period. Properly structured, a permit system could contain provisions for:

- more stringent local limits, if necessary to satisfy "water quality track" programs where available
- the facility's duty to operate treatment facilities at optimum levels

- provisions for revocation and reissuance of permits under special circumstances, where not provided for in the regulation (e.g. significant non-compliance, change in process operations, change in production capacity)

Most important, legal amendments enabling a pollution elimination permit system would make illegal the discharge of wastewater without a valid permit, entrenching *in law* the notion that being allowed to discharge pollutants into the environment is a revokable privilege, not an inalienable right.

MAC therefore repeats and further emphasizes its earlier recommendation that the Ministry replace the Certificate of Approval system with a time-limited pollution elimination permit system. It is MAC's view, already expressed in other documents, that the Ministry's approval of industrial treatment facilities places it in a position of conflict when those facilities fail to work as expected. In these times of fiscal restraint, MAC sees considerable benefit in reducing or eliminating the Ministry's approval activities in favour of a strict regulatory function.

Net Loadings

The Issues Resolution Process resulted in a decision, which MAC supported, that the concept of "net loadings" would not be permitted in judging industrial compliance. The justification for this decision was that it would be very difficult, and probably impossible, to demonstrate mass balances through complex industrial processes, and thus to determine with certainty the net contribution of pollutants from the facility.

MAC finds that this issue must be revisited in consideration of so-called "zero" limits. To avoid lengthy debate on the question of "analytical zero", MAC has recommended an approach, which we believe to be supported by the Ministry, that "zero" can be taken as equal to influent or background concentrations. This concept became particularly important as MAC explored the possibility of imposing limits of "zero" on the full primary and secondary candidate substances lists for zero discharge. Many metals, phenols, and other compounds (including some of the chlorinated organic compounds in AOX) occur naturally in the environment and may be very difficult to control to "analytical zero". Many problems arising in this regard may be resolved using an "inflow equals outflow" limit instead.

MAC therefore recommends that the concept of net loadings be allowed where bans and phase-outs to "zero" are contemplated. MAC notes, however, that this approach will create inconsistencies with other regulated parameters. It may be appropriate (indeed, industry believes it is essential) to re-examine the issue of "net loadings" with a view to developing a more consistent approach across *all* regulated parameters.

Part II: Options for Additional Controls on AOX and/or Specific Persistent, Toxic, Bioaccumulative Compounds

In addition to the recommendations given in Part I, the MISA Advisory Committee has explored a number of options for regulation of AOX, or of specific persistent toxic contaminants, or both. We present below seven such options, with our assessment of their advantages and disadvantages. A summary of these options appears as Table 1.

Option 1: Control of AOX to 1.5 kg/t

An obvious option, and the least stringent of those we discussed, is to impose no further control on AOX levels beyond the 1.5 kg/t recommended above.

Cost: This option entails no additional cost to industry beyond the controls discussed in Part I. (Industry notes that the total cost of compliance with federal regulations and the limits proposed above, including a limit of 1.5 kg/t AOX, will be \$277 million for the bleached kraft pulp mills, as discussed in the consultant's report on best available technology for the sector. This expenditure is in addition to the more than \$100 million already spent in achieving compliance with the current 2.5 kg/t limit.)

Advantages: MAC believes that this option would be welcomed by industry as imposing no financial burden beyond that required under Federal regulations and the limits discussed above. The 1.5 kg/t level represents a significant improvement beyond historical discharge levels and those observed under MISA monitoring regulations, is comparable to limits in place in other jurisdictions around the world, and represents a 40% reduction from the current 2.5 kg/t limit.

Disadvantages: This option is not technology-forcing and may appear inconsistent with your September 27 promise that the MISA program will incorporate emphases on pollution prevention, no cross-media transfer of pollutants, and zero discharge of specific persistent toxic chemicals. (It should be noted, however, that even achievement of 1.5 kg/t will virtually eliminate discharges of 2,3,7,8,-TCDD and 2,3,7,8-TCDF. Control to this level will be accomplished primarily through in-plant changes consistent with your emphasis on pollution prevention.)

Option 2: 0.8 kg/t AOX by 2000 Plus Toxic Use Reduction Plans

Somewhat more stringent than Option 1 would be an option that allows the industry to make maximum use of chlorine dioxide technology, with certain process modifications and optimal operation, but without the major capital that would be required to introduce high cost technologies such as extended cooking. MAC believes that a limit of 0.8 kg/t AOX with a ten year compliance horizon would be such an alternative. To ensure continued movement towards reduction or elimination of persistent toxics, MAC suggests that such an option could be coupled with a requirement that each facility prepare Toxic Use Reduction Plans within five years of promulgation, showing how discharges of substances on the Candidate Substances List for Bans and Phase-Outs (primary and secondary lists) could be phased out by 2005 and indicating the technical and economic feasibility of such a strategy.

Cost: Unknown; probably less than \$100 million province-wide to achieve 0.8 kg/t, and exclusive of those associated with actual phase-outs of the candidate substances. (NOTE: The costs estimated for Options 2-7 are incremental costs beyond those required to achieve Option 1, or a limit of 1.5 kg/t AOX.). The cost of consultant services to prepare toxic use reduction plans is unknown but is probably small relative to installation of new control technologies.

Advantages: This option probably involves expenditures by industry in the tens, rather than hundreds, of millions of dollars, and may therefore be more palatable to them than options that force high-cost installation of, for instance, extended cooking. At the same time, it is consistent with "zero discharge" and "pollution prevention", while avoiding the scientific pitfalls surrounding stringent AOX controls.

Disadvantages: This option cannot be considered the most stringent control possible for AOX or persistent toxic chemicals. Furthermore, it does not force the industry to move beyond present levels of technology, and does not encourage movement away from use of chlorine compounds. It may, however, provide a useful educational vehicle and a basis for future controls.

Option 3: 0.8 kg/t AOX by 2000 Plus Chlorine Reduction Plans

This option is closely related to Option 2 but requires the industry to prepare plans showing how it would phase out the use of all chlorine compounds. Its costs, advantages, and disadvantages are generally similar to Option 2 but it would allow you to target chlorine directly.

Cost: Unknown; probably less than \$100 million province-wide (exclusive of the costs of actually phasing out use of chlorine compounds)..

Advantages: As with Option 2, this option probably involves expenditures by industry in the tens, rather than hundreds, of millions of dollars. It is consistent with "zero discharge" and "pollution prevention" in that it focuses on the phase-out of chlorine compounds, and thus moves towards eliminating the production of toxic, persistent, bioaccumulative chlorinated compounds.

Disadvantages: As with Option 2, this option cannot be considered the most stringent control possible of AOX or persistent toxic chemicals, and it is not technology-forcing. Nevertheless, industry may resist even this planning exercise because they do not accept the need for elimination of all chlorine compounds in bleaching; see Option 6 below.

Option 4: Phase-Out "Zero Discharge" Substances by 2005

You might elect not to control AOX beyond 1.5 kg/t but instead regulate the phase out of all substances on the Candidate Substances List for Bans and Phase-Outs (primary and secondary lists). If this approach is adopted, it may be appropriate to regulate particular forms or uses of the pollutants. For example, it may be necessary to phase out the use and production of organic forms of metals rather than all forms: control to "zero" of an element such as mercury or copper may be highly problematic.

Cost: Unknown; technology dependent. Would likely entail a combination of consultant services, changes to raw materials and installation of new technologies.

Advantages: The Candidate Substances List has the advantage of being based on excellent scientific information about the toxicity and physical properties of the various substances. This approach therefore avoids much of the scientific uncertainty that surrounds AOX, is clearly technology-forcing and consistent with zero discharge and pollution prevention. An additional advantage is that a parallel approach could be taken with all other MISA sectors. Industry may accept this option, but only if the central issue of "net loadings" is addressed. That is, "zero" must be defined as "inflow equals outflow", allowing industries to discharge the equivalent of background levels. This issue is particularly important in Northern Ontario, where there may be high levels of metals and other toxins occurring naturally in tree tissue. Industry would be unlikely to accept a definition of zero, for instance laboratory detection limit, that required them to remove toxins they themselves had not added.

Disadvantages: The Candidate Substances List has not been assessed for the technical and economic feasibility of phase-outs. It remains to be seen whether such bans are reasonable or unacceptable, whether economically, socially or politically. Concerns would be significantly reduced if only the primary list were chosen for phase-out (it should, however, be noted that only one primary list substance, pentachlorophenol, is of concern in the pulp and paper sector, and that substance has already been largely eliminated from use). Furthermore, under such a phase-out plan, it may be necessary to limit only certain chemical forms of naturally-occurring elements: limits on all forms of an element such as mercury or copper would be highly problematic.

Option 5: 0.25 kg/t AOX by 2002; "inflow equals outflow" by 2007

Options 2 and 3 suggest that a limit of 0.8 kg/t might be achievable with only modest additions to existing chlorine dioxide technology. An extension of this would be to make maximum use of existing technology by adding oxygen delignification and extended cooking; this may require industry to move somewhat beyond McCubbin's K5 technology train, as defined in the sector BAT report.

MAC has heard evidence that at least two North American mills (Procter and Gamble, in Oglethorpe, Georgia, and Weyerhaeuser, in Columbus, Mississippi²) are currently producing kraft pulp with AOX discharges below 0.25 kg/t (long term average), or about 0.3 kg/t monthly average, using chlorine dioxide processes. MAC understands that these mills use low-AOX technologies for significant portions but not 100% of their production, are not yet able to achieve the brightness and strength of Ontario kraft pulps, and use some mixture of hydrogen peroxide and/or other technologies with their chlorine dioxide bleaching.

Cost: Estimated at between \$500 million and \$1 billion province-wide.

²Union Camp estimates that its Franklin, Virginia mill, due to open in October 1992, will achieve AOX levels of less than 0.1 kg/t from the bleach plant; that is, prior to any secondary treatment. This facility will use oxygen delignification, ozone bleaching, oxygen fortified extraction and chlorine dioxide initially, but will not produce market quality bleached pulp. Union Camp does have plans to replace chlorine dioxide with hydrogen peroxide in the next several years, to produce chlorine compound-free market brightness pulp, but at present this plan is entirely speculative. Union Camp projects that hydrogen peroxide bleaching will result in AOX levels from the bleach plant that approximate influent or background levels.

Advantages: This option allows industry to make maximum use of existing chlorine dioxide technologies, while sending a clear message that "zero" is the ultimate goal. It is likely to be accepted and even applauded by many public interest groups as a true "zero discharge" strategy. It also opens the door to the development of zero effluent technologies for kraft mills, which may demand that chlorine compounds (which severely corrode recycle lines) are absent from the process. Zero effluent mills are being designed and built in other pulp subsectors, such as chemi-thermo-mechanical and bleached chemi-thermo-mechanical mills, but whether it is possible or fair to require such "green field" technology in existing kraft mills is an open question.

Disadvantages: This option entails high costs and is viewed by the industry as little better than "zero". It also may limit the range of product quality (in terms of strength and brightness) that can be produced by the mills, and thus their potential markets.

Option 6: Zero AOX by 2002 (British Columbia strategy)

Among the most stringent of the options we have considered is a strategy consistent with the British Columbia approach of requiring zero AOX from the bleach plant by 2002.

Cost: Unknown; technology dependent. Costs are potentially very high because this option would require elimination of chlorine dioxide technology, in which the industry has invested heavily, and replacement of it with alternative technologies of unknown cost.

Advantages: This option is clearly "technology forcing"³ and consistent with your September 27 announcement. It will require industry to eliminate discharges of chlorinated compounds *before* any secondary treatment. To do so will unquestionably require the industry to abandon chlorine dioxide bleaching in favour of low- or zero-chlorine technologies, possibly ozone, hydrogen peroxide, or enzyme-assisted bleaching, or some combination of these or other methods. It will force industry down the path towards production of chlorine compound-free products. This option is likely to be applauded by supporters of a "zero discharge" strategy.

³If Union Camp is able to produce market quality, chlorine-compound-free pulp within the next few years, as it expects, the technology may in fact be very close.

Disadvantages: Because it is technology-forcing, the costs of this option cannot be known or even guessed at present. As discussed in Option 5 above, currently available technologies may not permit production of the full range of product quality (strength and brightness) now offered by the industry and thus have the potential to change or limit markets. Other difficulties with this option involve the scientific uncertainty surrounding AOX as an indicator of environmental damage. Only a small fraction of AOX, perhaps one-tenth to half of one percent, is believed to be persistent, toxic and bioaccumulative. Recent research suggests that AOX is not the sole or even the primary cause of toxicity in pulp and paper effluents. Industry therefore argues that vast sums of money will be spent to control benign compounds, with no guarantee that acute or chronic toxicity will be eliminated.

Option 7: Zero Effluent from Kraft Mills by 2007

Probably the most stringent option available to you is a strategy that would require kraft mills to eliminate all effluent discharges within the next fifteen years.

Cost: Unknown; technology dependent; probably very high relative to other options.

Advantages: This option is clearly "technology forcing" and consistent with your September 27 announcement. It has the additional benefit of eliminating other undesirable effects from pulp and paper effluents, while perhaps also eliminating the need for costly secondary treatment systems.

Disadvantages: As with Option 6, the costs of this option cannot be estimated. MAC understands that there may also be significant technological barriers to zero effluent processes from kraft mills at present, although the time frame suggested is sufficiently long that those obstacles can probably be overcome without difficulty.

PART III: Optional Additions to Any Control Strategy

Any of the regulatory options discussed above could be coupled with some or all of the following:

(a) Provisions for Progress Reports

In each even-numbered year following promulgation, each facility could submit to the Ministry a report on its work towards requirements with regulatory requirements other than numerical limits. This approach might be particularly appropriate under scenarios requiring preparation of phase-out plans. Progress reporting was required under the Acid Rain Regulations (Ontario Regulation 661/85); a similar approach could be used here.

(b) Research on the Causes of Chronic and Acute Toxicity in Pulp and Paper Effluents

Much of the controversy about control of pulp and paper effluents has centred on AOX as an indicator of environmental effects, effluent toxicity, and similar factors. MAC believes that in the longer term the Ministry should support research on the causes of chronic and acute toxicity in pulp and paper effluents, including work toward the development of a better indicator of toxic, persistent and bioaccumulable compounds. MAC recognizes that considerable work in this area is already underway through joint efforts by Environment Canada (NWRI) and the Paper Research Institute of Canada. MAC believes that there is a need nevertheless for the Ministry to become involved in the planning and coordination of this research, including scrutiny of its peer review, to ensure that any additional research initiatives proposed by the Ministry are well integrated with existing programs.

(c) Procurement Policies Favouring Chlorine Compound-Free Paper

MAC believes that the Ministry could set an example to industry, other government agencies, and the public by establishing internal procurement policies requiring chlorine compound-free paper products. The Ministry may also be able to bring pressure to bear on other ministries, particularly the Ministry of Government Services, to do the same. This action would be possible under even the least stringent option for AOX control above. Because the industry does not agree with the need for reduction or elimination of chlorine compounds in pulp bleaching, they do not support this proposal in any form.

APPENDIX B.4

MISA ADVISORY COMMITTEE

CORRESPONDENCE REGARDING

MISA EFFLUENT LIMITS REGULATIONS FOR THE METAL

MINING, INDUSTRIAL MINERALS, AND METAL CASTING SECTORS

- Letter to the Honourable R. Grier Re: MAC's Comments on Draft Effluent Limits Regulations for the Metal Mining Sector, the Industrial Minerals Sector, and the Metal Casting Sector, January 25, 1993.



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January 25, 1993

The Honourable Ruth Grier
Minister of the Environment
135 St. Clair Ave. West
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Dear Mrs. Grier:

Further to your request of December 21, 1992, the MISA Advisory Committee has now completed its examination of selected issues in the Industrial Minerals, Mining, and Metal Casting Sectors. We find that virtually all of these issues are related to projected non-compliance, many of them with respect to proposed toxicity requirements. We therefore believe that a generic solution will be preferable to wasteful and inconsistent case-by-case assessment. We have two key recommendations in this regard:

1. **That you establish a single, formal process to assess these cases, rather than allowing case-by-case exemptions, control orders, or other special treatment.**
2. **That you replace the requirement for non-toxic effluents with a requirement that facilities with toxic effluents conduct Toxicity Reduction Evaluations to the satisfaction of the Ministry.**

These recommendations are discussed in the following paragraphs.

A One-Window Exemption Mechanism

Most of the "issues" under discussion have arisen because of projected non-compliance in certain facilities. The circumstances differ somewhat from case to case: some relate to toxicity problems, some to high costs, and so on, but all have in common a strong concern about the possible financial and legal consequences of non-compliance. We believe that companies may already be lobbying you and other senior government officials in an effort to derail proposed MISA limits.

MISA staff suggested to us some options for dealing with chronic non-compliance: exempt certain facilities from the regulations; exempt certain parameters from the regulation; or use control documents on a case-by-case basis. None of these options was palatable to us, hinting as they do at an uneven playing field and a heavy workload for the regions.

We believe that the most desirable resolution would involve a single, formal process for the granting of variances from the regulations *before* promulgation, so that the final regulation would incorporate all amendments for "special cases". In this way, exemptions and after-the-fact controls become unnecessary.

We propose the following mechanism:

1. Allow the JTCs to **develop consensus-based regulations** that incorporate the "best available technology, economically achievable" for each sector.
2. Prior to public review and comment, and therefore prior to promulgation, allow each facility **an opportunity to prepare an application for variance** from the proposed regulation on the basis of Fundamentally Different Factors, such as are used in the U.S. Clean Water Act (Appendix A provides some relevant background on this approach).
3. **Review each application within the Ministry.** Persuasive arguments could include excessively high costs relative to the rest of the sector; fundamentally different technical, geographic or climatic factors; or adverse environmental consequences of technology installation (for example, high energy costs or land use).
4. **Decide for each case whether a variance will be disallowed (an appeal process may be necessary here) or granted.** If granted, the variance could specify longer times to compliance, or specific research or other investigative work, such as a Toxicity Reduction Evaluation. It could also recognize a problematic net loadings situation and require additional investigation or other work to reduce influent concentrations.
5. **Incorporate any favourable decisions into the schedules of limits, which thus become part of the draft regulation** and are circulated with it for public review. We expect that the decision making process for variance applications would be consistent with the public participation requirements of the proposed Environmental Bill of Rights.

Are Non-Toxic Effluents Achievable in Three Years?

MAC notes that many potential non-compliance cases are related to toxicity. In our view, zero toxicity is a long-term goal, similar to zero discharge of persistent toxic contaminants; it need not be achieved in the first round of MISA. We find nothing in the original MISA White Paper, in the Issues Resolution Process Final Report Summary, or indeed in any of your own public policy statements that binds you to a three year compliance horizon for zero toxicity. Our own advice has consistently emphasized the need for investigation of the sources of toxicity, with gradual reduction to zero over time.

Our caution in this respect stems from our belief that that many facilities in most sectors will find zero toxicity a major obstacle to their acceptance of proposed effluent limits. A particular problem arises in the municipal sector, where zero toxicity is a distant prospect. While all sectors should be working towards a goal of zero, it may be unrealistic to demand universal compliance within three years. MAC therefore recommends that the requirement for non-toxic effluents be removed from the regulations and replaced with a stipulation that facilities with toxic effluents conduct Toxicity Reduction Evaluations to the satisfaction of the

Ministry. The timing and content of such evaluations should probably be described in the regulation and/or a separate "protocol" document.

Suggested Resolution of Specific Issues

Taking the above recommendations together, we find the following issues easily resolved.

Industrial Minerals

High Toxicity of Salt Mine Effluents

The MISA program is founded on the premise of Best Available Technology, Economically Achievable. It appears to MAC that the salt mines are a subsector of Industrial Minerals for whom BAT-EA for non-toxic effluents is not presently available. No variance may be necessary in this case: simply write the schedules to include levels reflecting BAT-EA technology (and thus allowing some level of toxicity in salt mine effluents). Alternatively, the situation would be resolved by adoption of our recommendation for Toxicity Reduction Evaluations rather than enforcement action in the case of toxic effluents.

Frequency of Toxicity Testing

Where effluents have been demonstrated to be non-toxic in pre-compliance monitoring, we have no objection to reducing test frequency to four times a year for the first year and twice a year thereafter. Where a test is positive, we suggest that the facility conduct a Toxicity Reduction Evaluation and return to quarterly monitoring until four successive non-toxic results have been achieved. Where a facility will have difficulty meeting quarterly testing requirements because of cost, a "fundamentally different factor" (in this case, an economic factor) exists and would justify a formal variance under the regulation.

High Influent Suspended Solids in Salt Mines (Net Loadings Request)

Levels of suspended solids are high in the Detroit River due to ship traffic, soil erosion, and the influence of the sewage treatment plant effluent. This seems to us a reasonable basis for granting a variance for facilities affected in this way, such that *for suspended solids only* the facilities may report net rather than gross loadings to the Ministry.

Exemption of Quarries

MAC understands that this issue relates solely to concerns about demands on regional staff rather than environmental impact from suspended solids, which is probably minimal in any case. We therefore suggest regulation of this subsection by Permit by Rule, specifying only the required technology(ies) and operating conditions ("properly operated and maintained..."). Any requirement to achieve a specific discharge limit (or toxicity

requirement) would greatly increase demands on regional staff while achieving little additional reduction in an already-innocuous pollutant.

Metal Mining

Toxicity of metal mine effluents will continue to be a problem for some facilities, particularly where ammonia levels are high; a parallel case exists in the municipal sector. Adoption of our recommendation for modifications in toxicity limits and compliance would resolve this issue. Alternatively, concerned facilities could seek variances under the mechanism described above. We note, however, the large number of active and abandoned properties in the province, and suggest therefore that the former option may provide the fairest and most easily implemented solution.

Metal Casting

We have been asked, in the absence of detailed information on technical feasibility, or rationale for proposed limits, or economic impacts, to decide whether BAT 1 or BAT 2A is preferable for Ford Oakville. We consider the documentation before us to be inadequate for such a decision and must therefore defer consideration of this issue until complete information is available to us.

Other Issues

Net Loadings

We believe that the Ministry's expressed decision to disallow net loadings is sound and should be maintained. It is unlikely that many facilities will be out of compliance on a regular basis solely because of high influent concentrations. Where such cases do exist, we recommend that they be dealt with through formal variances, as described above.

Parameter Selection in the Metal Mining Sector

MAC notes that parameters in the Metal Mining Sector have been selected based on active properties only. As new technologies emerge, it is becoming routine for abandoned properties or tailings deposits to be reopened and re-mined, with no guarantee that their effluents will not contain other, unregulated but toxic compounds. MAC would be interested in hearing how the Ministry intends to deal with these situations. Certainly, case-by-case amendments to the regulation would be possible, but other, less cumbersome, measures may also be available. Once again, we feel bound to mention the utility of monitoring for assessment in tracking unregulated parameters of concern, and of time-limited permits in adapting to changing effluent profiles.

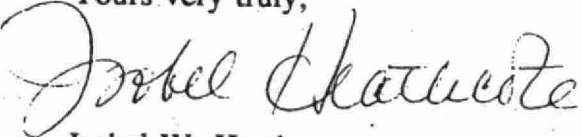
Examination of the metal mining issue has also brought another issue to light. For this and other sectors, a technology may be widely available but may not be cost-effective for most facilities in a given sector. For example, a number of nitrogen-removal technologies are in use in the municipal and other industrial sectors. Nitrogen fertilizer manufacturing facilities use biological or air stripping systems to remove ammonia; municipal sewage treatment plants use activated sludge systems or advanced processes for nitrification, and so on. While not all of these technologies are appropriate for the relatively dilute effluents produced in the metal mining sector, some are certainly applicable; the major obstacle to their implementation may simply be cost.

Our concern is therefore that the BAT selection process rejects well tested but (for that sector) high cost technologies as not "best available technology", thus also limiting the parameters that will be candidates for limits. In effect, therefore, the decision about economic achievability is made in a *de facto* fashion at the stage of BAT analysis, before parameter selection and before sector-wide economic information is available. In the metal mining sector, ammonia--a chief source of toxicity--has been eliminated from consideration for limits in this way. Here again, monitoring for assessment would provide a means to track such pollutants without forcing limits to be set.

This letter has proposed fundamental changes to the generic form of limits and the process for granting variances. We have suggested resolutions for certain issues, but do so without the benefit of information on economic impact, technical feasibility and justification of proposed limits. Furthermore, we have had no opportunity to discuss this advice with representatives from the various industrial sectors.

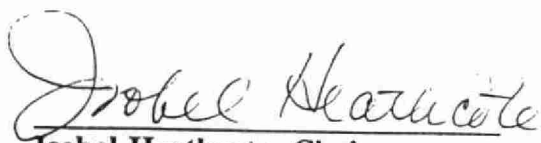
As a result, we must emphasize our wish to review each regulation in full, with full supporting documentation, before it is released for public comment. Only in that way can we be sure that we have given you the best possible advice on each regulation.

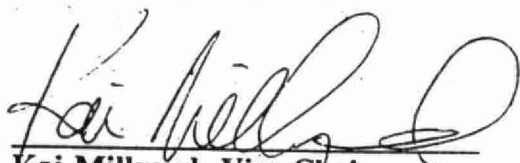
Yours very truly,

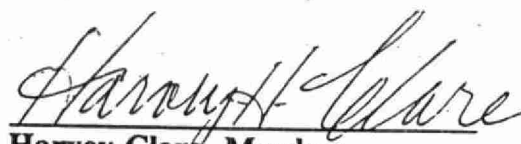


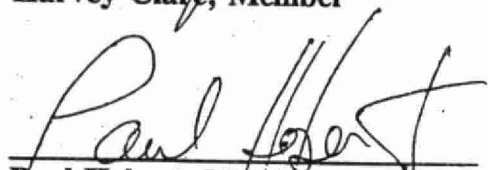
Isobel W. Heathcote
Chair
MISA Advisory Committee


MISA ADVISORY COMMITTEE

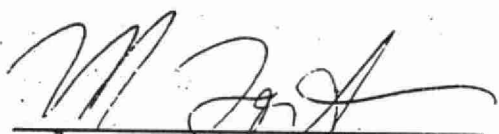

Isobel Heathcote, Chair


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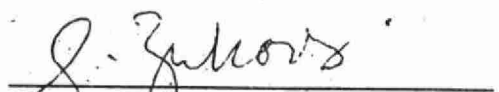

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APPENDIX A

U.S. EPA REGULATIONS for INNOVATIVE TECHNOLOGY AND FUNDAMENTALLY DIFFERENT FACTORS

The U.S. Environmental Protection Agency has established regulations dealing with facilities installing innovative technology, and those having "fundamentally different factors". While the U.S. system is in some ways different from Ontario's, the criteria established for these cases provides useful background for the development of a uniform mechanism for granting variances from the regulation.

Facilities Installing Innovative Technology

Section 301(k) of the Clean Water Act provides that the Administrator (or an authorized state official) may grant a compliance extension for BAT limitations to a discharger which installs an innovative technology. The innovative technology must produce either a significantly greater effluent reduction than that achieved by the BAT-EA technology, or the same level of treatment as BAT at a significantly lower cost. Compliance date extensions can be no longer than two years after the date which would otherwise be applicable.

Fundamentally Different Factors

EPA states that:

In establishing national limits, EPA takes into account all the information it can collect, develop and solicit regarding the factors listed in sections 304(b) and 304(g) of the Act. In some cases, however, data which could affect these national limits as they apply to a particular discharge may not be available or may not be considered during their development. As a result, it may be necessary on a case-by-case basis to adjust the national limits, and make them either more or less stringent as they apply to certain dischargers within an industrial category or subcategory. This will only be done if data specific to that discharger indicates it presents factors fundamentally different from those considered by EPA in developing the limit at issue. Any interested person believing that factors relating to a discharger's facilities, equipment, processes or other facilities related to the discharger are fundamentally different from the factors considered during development of the national limits may request a fundamentally different factors variance under S122.21(1)(1)...

The criteria for a fundamentally different factors variance include a pollutant removal cost wholly out of proportion to the removal cost considered during development of the national limits, or a non-water quality environmental impact (including energy requirements) fundamentally more adverse than the impact considered during development of the national limits.

Factors which may be considered fundamentally different are

- the nature or quality of pollutants contained in the raw waste load of the applicant's process wastewater
- the volume of process wastewater and effluent discharged
- non-water quality environmental impact of control and treatment of the discharger's raw waste load
- energy requirements of the application of control and treatment technology
- age, size, land availability and configuration as they relate to the discharger's equipment or facilities; processes employed; process changes; and engineering aspects of the application of control technology
- cost of compliance with required control technology

In applying for variances for installation of innovative technology or for fundamentally different factors, the onus is on the discharger to prepare a complete application containing all relevant technical and economic information.

APPENDIX B.5

MISA ADVISORY COMMITTEE

CORRESPONDENCE REGARDING

THE MISA PROGRAM

- Letter to the Honourable R. Grier Re: Inclusion of Public Interest Groups in MISA Process, November 10, 1992.



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November 10, 1992

The Honourable Ruth Grier
Minister of the Environment
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Dear Mrs. Grier:

Late last summer, the MISA Advisory Committee met informally with members of several public interest groups to discuss ways in which the groups, and the public at large, might be involved more effectively in the MISA regulation development process.

Present at this meeting were Burkhard Mausberg of Pollution Probe, Sarah Miller of the Canadian Environmental Law Association and Great Lakes United, and Gord Perks of Greenpeace. MAC is most grateful that these individuals were able to meet with MAC, but must emphasize that this meeting can in no way be construed as comprehensive consultation on this issue. MAC strongly recommends that you review the mechanisms by which the groups, and the public at large, are consulted in the development of MISA regulations, and that you do so in consultation with the Ontario Environmental Network as an "umbrella" organization for many interest groups.

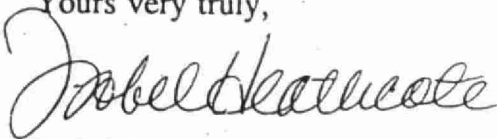
Our meeting did however generate two suggestions which you may wish to pursue.

The first is that the Ministry fund a single contract position, to be advertised through an organization such as the OEN and/or Great Lakes United, to represent the groups on the Joint Technical Committees and in related MISA activities. In our view, this individual should have full member status on the JTC, equal to Ministry and industry representatives, and thus a full voice in decision making. MAC believes that a funding level of about \$50,000 per annum would be appropriate for this position and related expenses.

The second suggestion is that the regulation writing process be modified somewhat to include wider consultation with the groups at an earlier stage in regulation development. One mechanism for this would be for the JTC to draft a conceptual approach to the regulation, which would then be circulated to the groups (possibly coordinated through the OEN) for comment. Following receipt of comments from the groups, and perhaps the public, the Regulation Writing Subcommittee of the JTC could proceed to draft a detailed regulation.

As always, MAC would be pleased to meet with you or your staff to discuss these recommendations.

Yours very truly,

A handwritten signature in cursive script, appearing to read 'Isobel W. Heathcote'.

Isobel W. Heathcote
Chair
MISA Advisory Committee

cc: Burkhard Mausberg
Pollution Probe

Sarah Miller
Canadian Environmental Law Association
and Great Lakes United

Gord Perks
Greenpeace

Tom Klein Beernink
Ontario Environmental Network



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April 15, 2010

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